



Environmental Assessment for the Construction and Operation of a Veterans Affairs Community-Based Outpatient Clinic at Fort Detrick, Maryland

April 2006

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**ENVIRONMENTAL ASSESSMENT FOR THE CONSTRUCTION AND
OPERATION OF THE VETERANS AFFAIRS COMMUNITY-BASED
OUTPATIENT CLINIC,
FORT DETRICK, MARYLAND**

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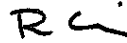
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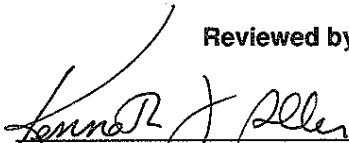
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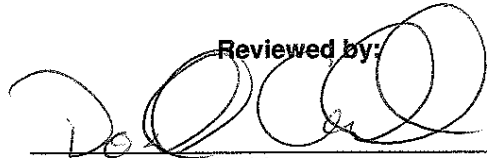
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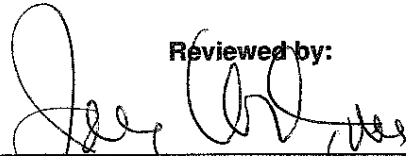
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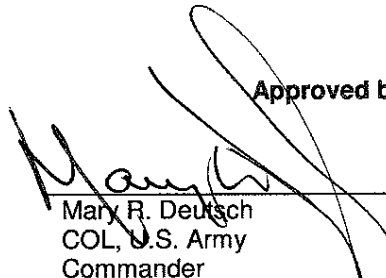
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EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared under the direction of the U.S. Army Garrison (USAG) at Fort Detrick and the Veterans Affairs Medical Center (VAMC) (Martinsburg, WV). The EA has been prepared in accordance with Army Regulation (AR) 200-2, *Environmental Effects of Army Actions*, dated 29 March 2002 to implement the *National Environmental Policy Act of 1969* (NEPA) (42 U.S. Code 4321-4347).

The EA characterizes probable and possible environmental impacts that might result from the implementation of the Proposed Action and the No Action Alternative. The Proposed Action is the construction and operation of the VA Community-Based Outpatient Clinic (CBOC) at Fort Detrick, Maryland (the preferred alternative).

The Proposed Action is a mission-supporting endeavor to improve the efficiency of services by sharing medical resources as directed by the President's Veterans Health Administration (VHA)/Department of Defense (DoD) Collocation Initiative. Fort Detrick currently provides health care services to active duty military personnel, military dependents, and retired military personnel. The VHA provides a variety of health care services to veterans. The purpose of the Proposed Action is to improve efficiencies and increase access to health care for veterans and active duty military personnel.

The VHA coordinated with the Veterans Integrated Service Network 5 (VISN 5) network office to select the location for the Proposed Action. Several criteria were used when considering potential locations including: location, size, accessibility, utilities, public transportation, environmental, and property availability factors. The Fort Detrick location fulfilled each of the identified criteria and is therefore the only action alternative considered in this EA. In accordance with NEPA, the No Action Alternative is also considered. While the No Action Alternative would not change baseline conditions, it provides the basis on which to compare potential impacts that could occur as a result of the Proposed Action.

Potential impacts of the Proposed Action were considered in detail and then compared to the No Action Alternative. Key issues associated with the Proposed Action include increases in local traffic volumes, increases in local air emissions at Fort Detrick (though, regionally increased air emissions would be offset due to shorter travel distances for veterans in/near the Fort Detrick area), and changes to storm water runoff characteristics during construction and post-construction. Based on proposed facility design and operational criteria, and the expected adherence to regulatory and other applicable standards, no impacts in these areas were determined to be significant. In addition, the potential for adverse impacts to other aspects of the natural and human environment were considered to be negligible or, at most, moderate. Lastly, substantial positive impacts would occur from the implementation of the Proposed Action, including increased medical services and expanded clinic space.

The implementation of the No Action Alternative would not result in impacts (beneficial or adverse) associated with the Proposed Action. The exception to this would be the adverse air quality impacts - veterans in/near the Fort Detrick area would continue to drive longer travel

distances in search of VAMC services, which would result in higher vehicle emissions for the region. Although the majority of adverse impacts would not occur with the No Action Alternative, the benefits of the enhanced medical services also would not occur. Therefore, the Proposed Action is the preferred alternative, because additional medical space is needed in VISN 5 to accommodate the anticipated increase in veterans over the next 20 years.

The principal conclusions of this EA are:

- The implementation of the Proposed Action (Construction and Operation of a CBOC by the VA adjacent to Barquist Army Health Care Facility at Fort Detrick, MD) would provide additional medical services to accommodate the rapidly increasing number of veterans in the VISN 5 region; provide more accessible medical services for the military community of Fort Detrick and shorten travel distance, thereby decreasing regional air emissions from vehicles; demonstrate the objectives of a Presidential joint initiative that would lead to more efficient health care resources; and increase Fort Detrick's real property value;
- The construction and operation of a new CBOC adjacent the Barquist facility would not result in any *significant-and-unmitigable* adverse impacts on the natural or human environments that would preclude the issuance of a Finding of No Significant Impact (FONSI); and
- The implementation of the No Action Alternative would generally have no adverse impacts to the natural or human environments, but it would not provide any of the benefits associated with the Proposed Action. Vehicle emissions would degrade air quality at higher rates due to the longer travel distances for veterans in the Fort Detrick area. Without the benefits of a new CBOC in the Fort Detrick area, the VAMC in Martinsburg would operate under the *status quo* and would provide unsatisfactory services to the veterans in the local area since the increase in workload would be performed in the VISN 5's medical centers.

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

This section describes the purpose and scope of the Environmental Assessment (EA). The section also summarizes the project background and other aspects, including the purpose and need for the Proposed Action, methods of evaluation used for this EA, and the approach to involve the public.

The National Environmental Policy Act (NEPA) of 1969 (24 U.S. Code [USC] 43211-4347, as amended), requires Federal agencies to evaluate environmental impacts associated with proposed major actions. The Council on Environmental Quality (CEQ) established regulations that govern the implementation of procedures outlined in NEPA (Title 40, Code of Federal Regulations [CFR] Parts 1500-1508). The Department of the Army (DA) implements NEPA and the CEQ requirements through Army Regulation (AR) 200-2, *Environmental Effects of Army Actions* (32 CFR 651), dated 29 March 2002.

Due to the potential for significant adverse environmental impacts, military construction projects generally must be preceded by the preparation of an EA. Based on AR 200-2, an EA must be prepared when screening criteria applied to a Proposed Action indicate that it would not be subject to a categorical exclusion. The purpose of an EA is to provide a sufficient basis to determine whether the Proposed Action would result in significant adverse effects on the environment, thereby requiring the preparation of an Environmental Impact Statement (EIS). Otherwise, if the results of the EA indicate that no significant adverse effects would occur from the Proposed Action, the EA will be used to document and justify a Finding of No Significant Impact (FONSI).

1.1 BACKGROUND

Fort Detrick is an Army Medical Command Installation that is home to numerous mission partners, including the U.S. Army Medical Research and Materiel Command (USAMRMC), the National Cancer Institute (NCI-Frederick), and the National Interagency Biodefense Campus (NIBC). The primary missions at the Installation include biomedical research and development, medical materiel management and global Department of Defense (DoD) telecommunications.

The Barquist Army Health Care Facility is a mission partner of the Installation that supports Fort Detrick's missions by providing health care services for active and retired military personnel and their dependents in the Baltimore-Washington metropolitan areas. The Barquist clinic is a 25,000-ft² facility with services in occupational health, physical therapy, radiology, primary care, pharmacy needs, counseling services, and general dentistry care.

The DA proposes to permit approximately 3.4 acres of land to the Veterans Affairs Medical Center (VAMC) (Martinsburg, West Virginia) for the purpose of building a Community-Based Outpatient Clinic (CBOC) in Area A of Fort Detrick, Maryland (Figure 1-1). The VAMC would construct the CBOC adjacent to the existing Fort Detrick Barquist Army Health Care Facility (Building 1434) (Figure 1-2).

1.2 PURPOSE AND NEED FOR THE VETERANS AFFAIRS COMMUNITY-BASED OUTPATIENT CLINIC (CBOC)

The Veterans Health Administration (VHA) of the Department of Veterans Affairs (VA) is the primary purveyor of health care services to veterans. The Veterans Integrated Service Network 5 (VISN 5) serves veterans in Maryland, the District of Columbia, and portions of Virginia, West Virginia and Pennsylvania. Data from the Capital Asset Realignment Enhanced Services (CARES) has identified that over the next several years an additional 17,000 veterans will seek health care from in the VISN 5 region, which will necessitate an increase in personnel and clinic space. By building multiple smaller outpatient clinics throughout the VISN 5 area, the VHA can maximize services to underrepresented areas.

In a desire to participate in the President's VHA/DoD Collocation Initiative, while accommodating increased health care demands for veterans, the VAMC and Fort Detrick are proposing the construction and operation of a CBOC at Fort Detrick, Maryland. The purpose of this CBOC is to improve efficiencies between agencies, share resources and increase access to health care for the regional military community. The CBOC would benefit the surrounding area by increasing clinic space and medical personnel in the northwest region of VISN 5, reducing travel time for area veterans and providing enhanced medical services to Fort Detrick.

The service area for the proposed CBOC includes: Carroll, Frederick, Howard, and Montgomery Counties in Maryland; Loudon County, Virginia; and Adams County, Pennsylvania. The estimated number of visits to the new CBOC, as listed below in Table 1-1, is expected to peak during the year 2012 before leveling off (Livengood, 2005). In order to meet the increased health care demands, the new facility would consist of up to 35 new employees (average of 30 employees per day) including physicians, nurses, health specialists, and support staff.

Table 1-1. Projected Numbers of Annual Patient Visits to the Proposed CBOC

Year	Number of Visits
2008	12,000
2009	20,000
2010	26,500
2011	33,000
2012	36,500

Source: Livengood, 2005

The proposed CBOC would provide primary care, mental health care, and selected specialty services to veterans and would be connected to the Barquist Army Health Care Facility via a new corridor. The proposed CBOC comprises a clinic facility, an adjoining corridor, and a parking lot. Future expansion plans include an ambulance loading dock and two building additions. The CBOC plans for construction activities and facility operation are discussed in Section 2.0 (Description of the Proposed Action).

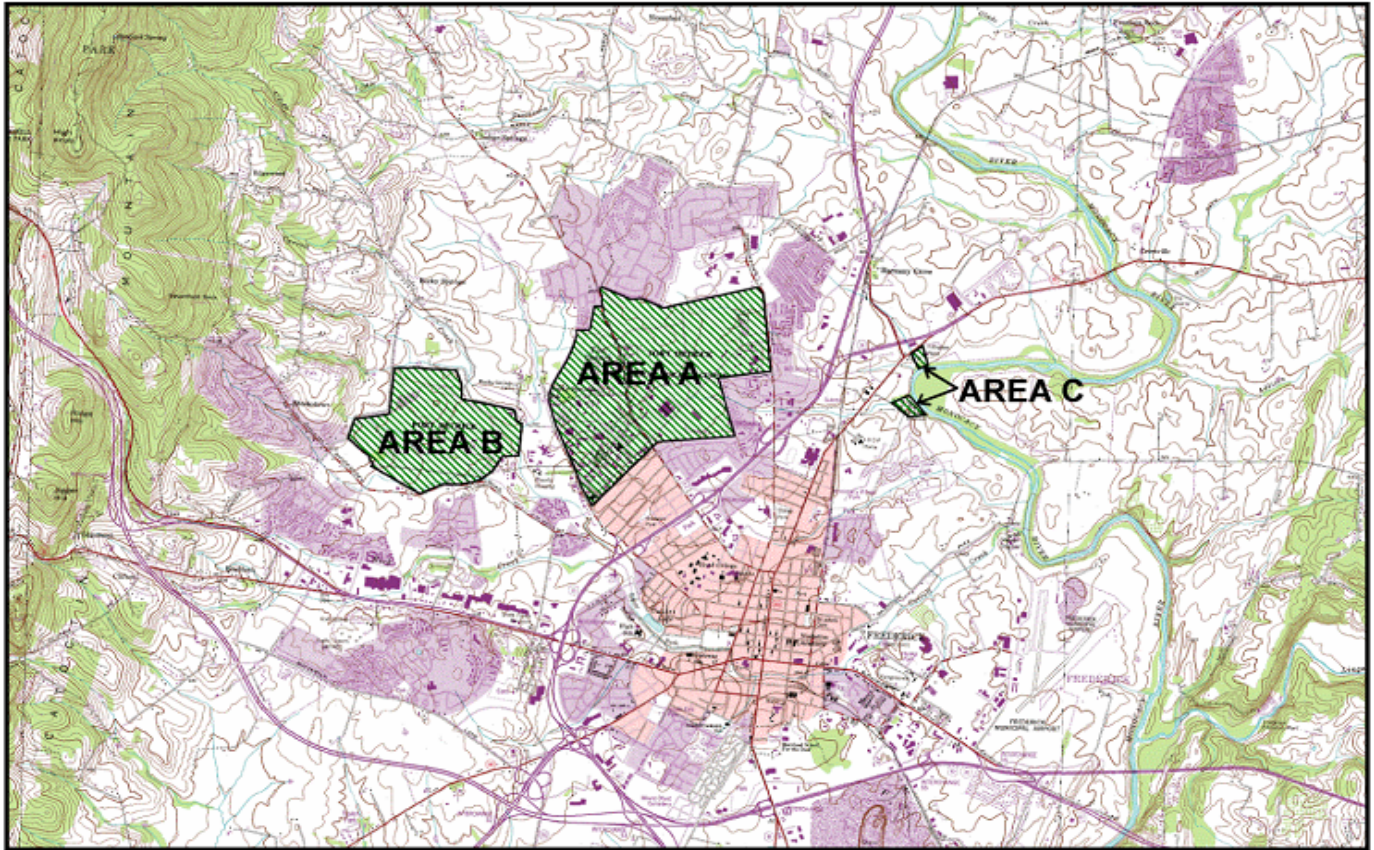


Figure 1.1. Area Location Map of Fort Detrick

Environmental Assessment for the Construction and Operation of the Veterans Affairs Community-Based Outpatient Clinic, Fort Detrick, Maryland

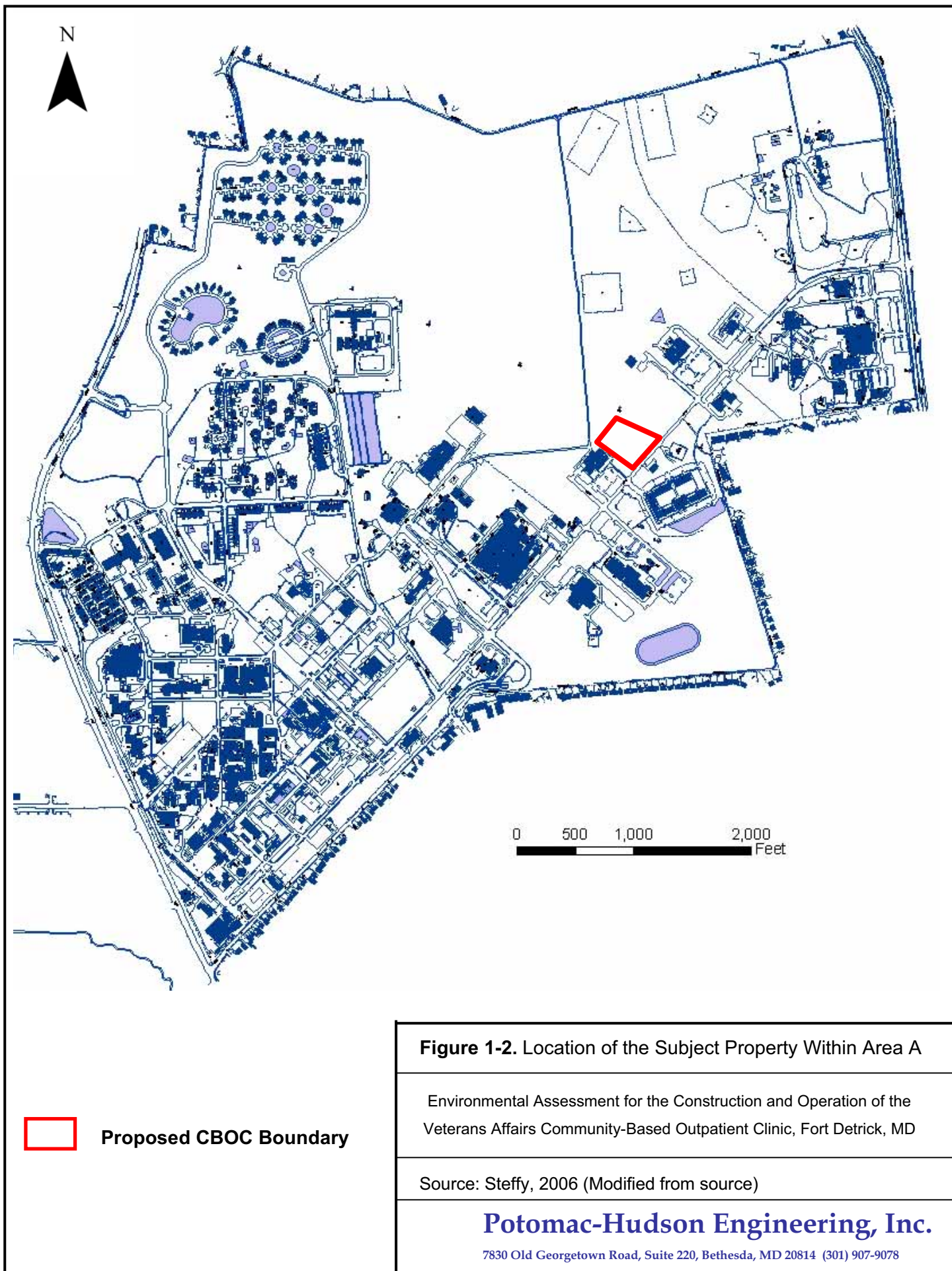
Source: USAG, 2005

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1.3 ASSESSMENT METHODOLOGY

This EA outlines the activities that would be associated with implementation of the Proposed Action (Section 2.0) and describes the Proposed Action and alternatives considered (Section 3.0). The EA characterizes the environmental features and resources that may be impacted during the implementation of the Proposed Action (Section 4.0), and describes potentially adverse environmental impacts, including human health effects from the implementation of the Proposed Action and No Action Alternative (Section 5.0). This analysis considers impacts that are expected to result from construction and routine operations, and it examines the potential for cumulative impacts among related activities in the affected areas.

The EA provides the best available information as of April 2006, including guidance provided by Installation personnel on proposed projects that may impact land use and/or utility requirements. Data presented in Sections 2.0 and 4.0 reflect the current conditions at Fort Detrick using references to the most recent available data source. Additional information may be received and incorporated into the EA during the 30-day public comment period.

CEQ regulations encourage agencies to eliminate repetitive discussions and to focus the decision process on the pertinent issues (40 CFR 1502.20). This approach promotes the summarization of earlier findings and the discussion of area-specific aspects in detail. Consistent with CEQ guidance, the following NEPA documents were consulted for incorporation of applicable information:

- *Environmental Assessment for The Construction and Operation of a Cogeneration Utility Plant (CUP) by Chevron Energy Solutions Company and Keenan Development (CK) on the East-Central Portion of Area A at Fort Detrick, Maryland* (USAG, 2005b)
- *Final Environmental Impact Statement for the Construction and Operation of the National Biodefense Analysis and Countermeasures Center (NBACC) by the Department of Homeland Security (DHS) at Fort Detrick, Maryland* (USAG, 2004b)
- *Final Environmental Impact Statement for the Construction and Operation of an Integrated Research Facility (IRF) by the National Institutes of Health (NIH) at Fort Detrick, Maryland* (USAG, 2003b)
- *Environmental Assessment, Installation Master Plan for Fort Detrick, Maryland* (USAG, 2003a)
- *Environmental Assessment for the Construction and Operation of an Electrical Substation by Allegheny Power at Fort Detrick, Maryland* (USAG, 2002).

1.4 PUBLIC PARTICIPATION

NEPA promotes a decision-making process that is open to the public, and public comments on this EA are solicited, encouraged, and anticipated. To ensure that there are ample opportunities for public comment, Fort Detrick follows standard Army policy by publicly announcing the availability of the EA in local media, making copies available to the public, providing a commenting period, and documenting a FONSI. In accordance with AR 200-2, unless comments are received that necessitate a change to this EA, the present document will be considered final as of the end of the 30-day public comment period.

2.0 DESCRIPTION OF THE PROPOSED ACTION

This section describes the Proposed Action and associated activities including: planned construction activities; applicable regulatory and permitting requirements; applicable health and safety standards; and best management practices that would be used to minimize environmental impacts or comply with regulatory requirements.

2.1 THE PROPOSED ACTION

The Proposed Action and subject of this EA is the construction and operation of a Veterans Affairs (VA) Community-Based Outpatient Clinic (CBOC) adjacent to the existing Barquist Army Health Care Facility at Fort Detrick, Maryland. The DA proposes to permit approximately 3.4 acres northeast of the existing facility to the VAMC for implementation of the Proposed Action (see Figure 2-1). As discussed in Section 1.2, the main objective of the Proposed Action is for the VAMC to accommodate the growing health care demands of veterans within the VISN 5 area through participation in a Presidential joint initiative by sharing agency health care resources with DoD.

The new facility footprint would encompass approximately 16,500 ft² and would provide primary care, mental health care, and selected specialty services. The Proposed Action would also include the construction of a 72,000-ft² paved parking lot that would accommodate approximately 85 parking spaces, of which 14 would be allotted for handicap accessibility. A corridor would be constructed to connect the existing Barquist Army Health Care Facility with the proposed CBOC. The Proposed Action also includes a future expansion that would increase the size of the facility by an additional 19,000 ft². In addition, implementation of the Proposed Action would include changing the subject site land use classification from "Research, Development, Testing and Evaluation" (RDTE) to "Medical/Dental", which is consistent with the land use classification of the adjacent property on which the Barquist facility is located.

The 3.4-acre property for the Proposed Action is currently an undeveloped, grassy field (see Figures 2-1 through 2-7). The property is located approximately 2,000 ft northeast of the Main Gate entrance on Porter Street, which is a primary road at the Installation. The property is bounded by a power line easement to the northeast, by an NIBC parking lot (under construction) to the northwest, and by Porter Street to the southeast. Also, a proposed Cogeneration Utility Plant (CUP), just north of the proposed CBOC site, is in its final approval stages and is planned for completion by mid-2007 (USAG, 2005b).

Figure 2-8 illustrates the proposed CBOC development plan and outlines areas for the anticipated 19,000 ft² future expansion, which includes the Ambulance/Emergency Service area. The Proposed Action consists of the following major elements:

- Addition of new clinic facility with adjoining corridor connecting to the Barquist Army Health Care Facility;
- Addition of new parking lot and entrance driveways from Porter Street; and
- Installation of new utility connections.

Regulatory and permitting requirements that would be triggered by the construction and operation of the proposed CBOC are also considered as part of the Proposed Action and are discussed further in Section 2.3. These include Best Management Practices (BMPs), such as proper erosion and sediment control (ESC) during construction per Maryland Department of the Environment (MDE) requirements.



Figure 2-1. Property Boundary for Proposed CBOC



Figure 2-2. View of Proposed CBOC site looking southwest towards Barquist facility



Figure 2-3. View of Proposed CBOC site looking northwest

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Figure 2-4. View of Proposed CBOC site looking north



Figure 2-5. View of Proposed CBOC site looking northeast

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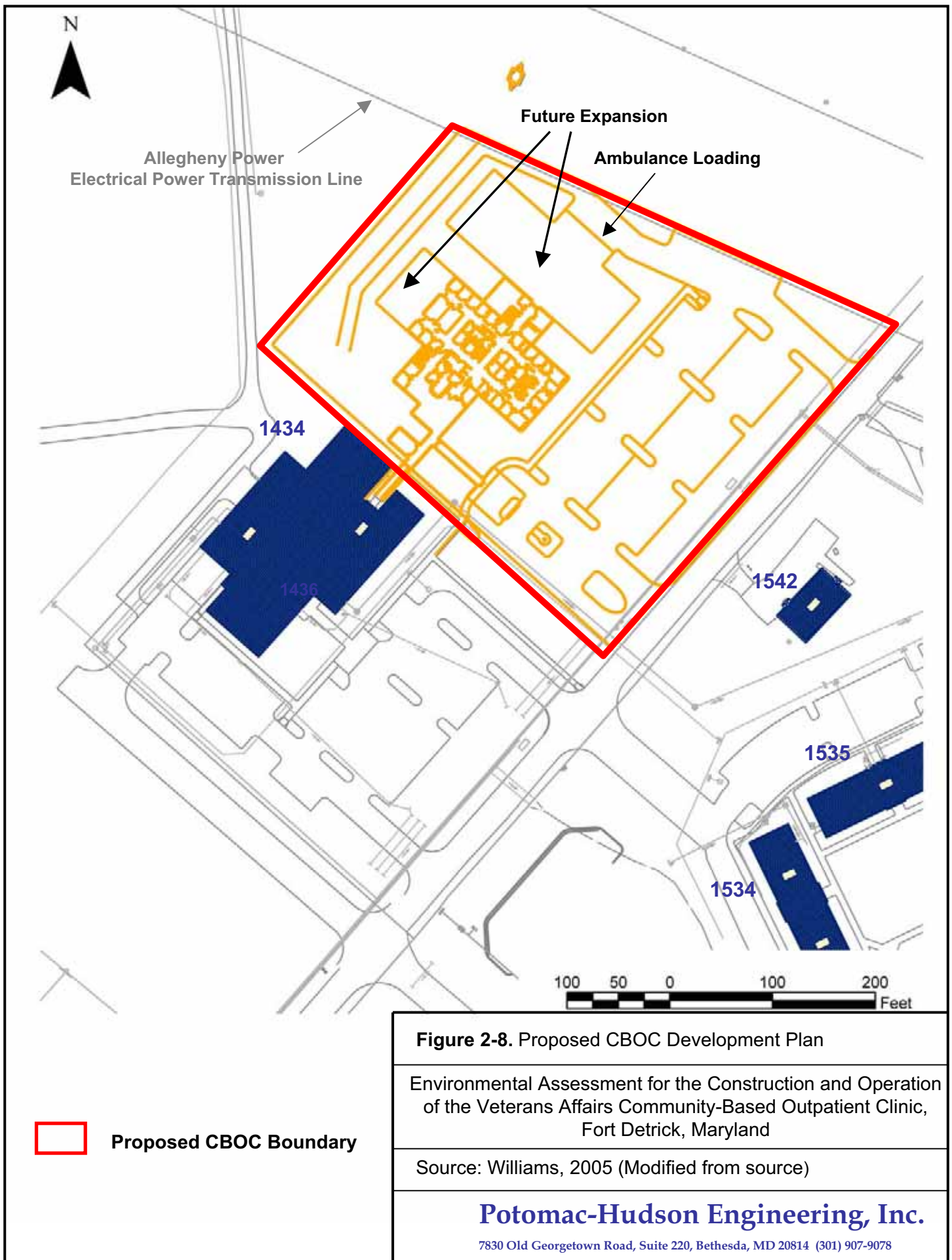


Figure 2-6. View of Proposed CBOC site looking southeast towards Porter Street



Figure 2-7. View from southern property boundary, looking southwest along Porter Street

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2.2 PLANNED CONSTRUCTION

Construction of the proposed CBOC and utility connections is anticipated to begin in spring 2007 and be operational by spring 2008. Expansion of the CBOC is expected to occur within a few years after completion of the new facility, as health care demands increase and future service needs are adequately defined. Construction activities for the proposed CBOC would be confined within the 3.4-acre parcel as outlined in Figures 2-1 and 2-8.

Initial construction would consist of a 16,500 ft², one-story brick building with underground utility conduits for electrical, telecommunication, water supply, gas, sanitary, and storm water conveyance. The corridor connecting to the Barquist facility would be approximately 10 ft wide and 80 ft long. Additionally, a 72,000-ft² asphalt-paved parking lot with two driveway entrances would be constructed to accommodate the influx of new staff and patients to the proposed CBOC. Future CBOC expansion would consist of a total of 19,000 ft² extended from the northwestern and northeastern walls, and would possibly include the addition of an ambulance loading dock.

2.3 REGULATORY AND PERMITTING REQUIREMENTS FOR CONSTRUCTION

2.3.1 Site Selection Regulations

In addition to completing this EA, the following regulations and documentation requirements must be met to ensure that the Proposed Action is consistent with Installation missions and land use goals:

- The selection of the location for the proposed CBOC followed guidelines outlined in AR 415-15, *Army Military Construction Program Development and Execution* (dated 25 October 1999). This regulation provides requirements and guidelines (i.e., funding, property planning, programs) for the implementation of construction projects on Army Installations.
- AR 210-20, *Master Planning for Army Installations* (dated 30 July 1993), requires that all installations maintain a planning board. The Fort Detrick Real Property Planning Board (RPPB) consists of representatives from the command, operational, engineering, and planning divisions of the Installation and mission partner activities. The RPPB evaluates master planning documentation, approves new construction sites and projects, and reviews the progress and status of major construction projects.
- AR 405-80, *Management of Title and Granting Use of Real Property* (dated 11 November 1997) regulates granting use of real property controlled by the DA, including delegating authority to issue out grants authorizing the use of such real property by non-Army users. The Secretary of the Army has the authority to grant the use of real property under his administrative control. The Assistant Secretary of the Army (Installations, Logistics and Environment) has the primary responsibility for DA real property programs.

- A Report of Availability (ROA) and an Environmental Baseline Survey (EBS) must be prepared by USAG as required by AR 200-1 and DA Pamphlet (DA PAM) 200-1. ROAs contain information required for the review and approval of land availability and for the preparation of legal documents such as leases or permits. The Assistant Chief of Staff for Installation Management makes a Determination of Availability prior to issuing out grants, such as leases or permits. Although primarily a management tool, the EBS assists in meeting obligations under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Community Environmental Response Facilitation Act (CERFA). AR 200-1 requires the completion of an EBS before any property can be sold, leased, permitted, transferred, or acquired by the Army. An EBS documents the physical condition and environmental status of a property as it pertains to the storage, release, or disposal of hazardous substances and petroleum products.

An EBS prepared for the property outlined in Figure 2-1 was finalized in January 2006. The EBS found that the majority of the property did not experience any activities that resulted in a release of hazardous substances or petroleum products. The southern corner does fall within a lead contamination zone from the historical Area A Skeet Range; however, it was determined that although a release may have occurred, the concentrations do not require a removal or remedial action. Information from the EBS is included in discussions of the Affected Environment in Section 3.

2.3.2 Construction/Demolition Waste Management

To ensure environmentally sound waste management practices occur during construction, the contractors would be required to submit a waste management plan within 15 days of the contract award, which meets the VA Directive 0057 (*VA Environmental Management System and Governing Environmental Policy*), Executive Order 13148 (*Greening the Government Through Leadership in Environmental Management*). This project-specific plan must be coordinated with waste management objectives for Fort Detrick as a whole. Contractors must make every effort to reduce overall construction and demolition waste by recycling materials whenever possible.

Contractors must also comply with AR 200-1 (*Environmental Protection and Enhancement*) and 10 USC Section 2692 regarding the storage, treatment, and disposal of non-defense toxic and hazardous materials and dispose of all waste generated during construction and demolition at an approved facility off of the Installation.

The Fort Detrick Municipal Landfill, located in Area B, serves as the endpoint for non-hazardous waste generated at the Installation. However, to extend the life of the facility, the permitted sanitary landfill will not be accepting wastes generated by the construction and demolition activities associated with the Proposed Action (USAG, 2005b). In accordance with Federal and state regulations, the contractors must dispose of all wastes generated during construction and demolition at an approved facility off of the Installation.

2.3.3 Fugitive Particulate Emissions

During construction of the Proposed Action, the contractor would employ BMPs to minimize particulate matter from becoming airborne at the project site in compliance with Code of Maryland Regulations (COMAR) pertaining to *Particulate Matter from Materials Handling and Construction* (COMAR 26.11.06.03D). Such practices may include the wetting down of exposed soils and the use of soil stabilization methods described in the following subsection.

2.3.4 Sedimentation, Erosion, and Storm Water Management Requirements

According to COMAR 26.17.01, *Water Management*, and 26.17.02, *Stormwater Management*, construction activities that disturb more than 5,000 ft² (0.11 acre) of land and/or more than 100 cubic yards (yd³) of earth require erosion and sedimentation control (ESC) and storm water management (SWM) plans consistent with the *2000 Maryland Storm Water Design Manual, Volumes I and II* (MDE, 2000). In addition, if the area disturbed would be greater than one acre in size, a general permit for construction activity under the National Pollutant Discharge Elimination System (NPDES) would be required for the discharge of storm water during construction. A Notice of Intent (NOI) application for the general permit must be completed and submitted with applicable fees to MDE. Because the Proposed Action would exceed the 5,000 ft² and 1-acre limits, ESC and SWM plans and the NPDES general permit would be required to implement the Proposed Action.

Pursuant to the requirements for ESC, the construction contractor would employ soil stabilization methods, which may include temporary seeding, mulching, geotextiles, and sod stabilization, as well as protection of trees and mature vegetation. In addition, BMPs such as silt fences, straw bales, diversion dikes, drainage swales, subsurface drains, storm drain inlet protection, rock outlet protection, sediment traps, and sediment basins may be used to limit runoff and pollutant discharges from exposed areas of the Proposed Action site. Trees and vegetation to remain standing would be protected from damage incident to clearing, grubbing, and construction operations by barriers or other appropriate means.

The SWM facilities would be designed consistent with the *2000 Maryland Storm Water Design Manual, Volumes I and II* and be constructed in accordance with a project plan approved by MDE. BMPs for SWM, including ponds, wetlands, infiltration, filtration, open channels, or a combination thereof, could be used. At Fort Detrick, extended wet detention ponds, sand filtration and open channels are the most feasible options for SWM, due to certain ecologic (West Nile virus), geologic (Karst geology) and climatic (drought) conditions (USAG, 2003a). Additionally, the SWM facilities would conform and participate in the regional management of post-construction stormwater runoff within the NIBC drainage areas.

2.3.5 Forestation Requirements

All construction on Fort Detrick is subject to the Installation's Forest Conservation Plan (FCP), to ensure compliance with the Maryland Forest Conservation Act (FCA) (COMAR 08.18.04) and the Forest Resource Ordinance of Frederick County. The FCP, which is on file with the Maryland Department of Natural Resources (MDNR), details the amount of forested land that will be retained, reforested or afforested and identifies the location in Area B where new tree

plantings will be completed to meet forestation requirements. Afforestation refers to the conversion of open land into a forest by planting trees.

Under the Maryland FCA, a forestation requirement must be met for projects that are 40,000 ft² (approximately 0.92 acres) or greater, for grading or sediment control permits. Fort Detrick, as a military installation, falls under the Institutional Development Area classification, which has a 15 percent Afforestation Threshold. In addition, any construction project that requires clearing of existing forested land would have a reforestation requirement.

The Fort Detrick FCP requires afforestation amounting to 15 percent of the total disturbed area in the Proposed Action plus reforestation at a ratio of 2 acres planted for each acre cleared, to be planted in trees in the designated areas on Area B. A landscape credit would require an area 35 ft by 2,500 ft to be planted as a buffer or screen. Funding for Reforestation/Afforestation would be included in the Proposed Action. The funds can be transferred to USAG for addition to the Forestation Contract already in place. In addition to planting, the FCP requires provision for maintenance of the plantings with a survival rate of 65 percent at the end of a two-year maintenance period.

2.3.6 Air Quality Requirements

Because nitrogen oxides (NO_x) and sulfur dioxide (SO₂) emissions at Fort Detrick surpass the state-established threshold levels, Fort Detrick is considered a “major source” for permitting purposes under the Clean Air Act (CAA) (USAG, 2004b). The CAA requires that a New Source Review (NSR) evaluation be prepared before construction and installation of any new permitted major sources or any major modifications of permitted major sources in nonattainment areas that have the potential to cause significant increases of criteria pollutants (nitrogen dioxide [NO₂], sulfur dioxide [SO₂], ozone [O₃], carbon monoxide [CO], lead [Pb], and particulate matter [PM]).

Areas of the U.S. in which air pollution levels persistently exceed the national ambient air quality standards (NAAQS) may be designated “nonattainment”. Currently, the Washington, DC-MD-VA region, which includes the Fort Detrick area, is classified as a *moderate* nonattainment area for O₃ and nonattainment for PM_{2.5} (USEPA, 2006). NO_x and VOCs, which are the precursor pollutants of O₃, are to be evaluated and controlled in O₃ nonattainment areas. The established emissions rate thresholds for a *moderate* O₃ nonattainment area are 100 tons NO_x per year and 100 tons VOCs per year.

The CAA requires that a Prevention of Significant Deterioration (PSD) evaluation be prepared before construction and installation of certain types of listed sources in attainment areas that have the potential to emit certain threshold quantities of criteria pollutants. Air quality permits to construct are required for generators greater than 500 horsepower (hp) or 373 kilowatts (kW) and for fuel burning equipment with rated heat input capacities greater than or equal to 1 Million British Thermal Unit per hour (MMBtu/hr). Air quality permits to operate are required for fuel burning equipment and hot water heaters with maximum rated capacities of 50 MMBtu/hr or more (USAG, 2004b). Auxiliary (combustion) equipment in the proposed CBOC may include the following: boiler(s), a standby generator, and/or a water heater. At this time there are no established design details about the potential auxiliary equipment; however, due to the size and

nature of the proposed facility, it is anticipated that such equipment would be well below the limits that would trigger the need for an air quality permit. The proposed CBOC would obtain heat/hot water from either new boilers or from the Cogeneration Utility Plant (CUP). For the purposes of determining the environmental impacts, it is assumed that the CBOC would install and operate two new gas-fired boilers.

A General Conformity Rule requires Federal agencies to perform *conformity reviews* to demonstrate that their actions do not interfere with State Implementation Plans (SIPs), plans that discuss local efforts to control air pollution. In general, the conformity review is the process used to evaluate and document project-related air pollutant emissions, local air quality impacts, and the potential need for emission mitigation. (There are several exceptions to the conformity review requirement, such as for projects that require Title V Part 70 Operating Permits.) If results of a review reveal that a Federal action interferes with SIP compliance, then a *full conformity analysis* must be performed. General Conformity under the CAA, Section 176, has been evaluated for the Proposed Action according to the requirements of 40 CFR 93.150 through 93.160 using anticipated design data. Results of the review for the initial phase show that a full conformity analysis is not required because: 1) total direct and indirect emissions of NO_x and VOCs from the Proposed Action would be well below the conformity threshold values established in 40 CFR 93.153(b); and 2) direct and indirect NO_x and VOC emissions from this project do not amount to 10 percent or more of the nonattainment area's emissions. Supporting documentation and emissions estimates are included in Appendix A, Clean Air Act General Conformity. The implications of the conformity review are discussed in Section 5.7 (Air Quality).

2.3.7 Design Requirements

Construction of the Proposed CBOC and associated utility lines would be performed by a contractor. Adherence to construction design standards would ensure that new structures would be safe, sound, and functional. Many of these design parameters, which specify guidelines for features such as layout, structural integrity, and aesthetics, are based on national codes and VA design specification, which were established to ensure the durability and safety of structures.

2.4 ROUTINE OPERATIONS

Though uncertain at this time, the VA would likely pursue agreements with USAG for utility and waste disposal services, including the usage of natural gas, water, electricity, and sanitary wastewater utilities and the removal of municipal, medical, and hazardous wastes.

Utility consumption and waste generation rates during fiscal year (FY) 2005 for the Installation and the existing Barquist Army Health Care Facility were provided by Fort Detrick's Directorate of Installation Services (DIS) and likewise rates were estimated for the proposed CBOC (see Table 2-1). Activities in the proposed CBOC facility are anticipated to be similar to those of the Barquist facility (area of approximately 25,000 ft²). Therefore, the projected estimates for the proposed CBOC were based on a proportional area (square footage) comparison, which assumes that the CBOC would include the future expansion for a total area of 35,500 ft².

Table 2-1. Projected Annual Utility Requirements and Waste Streams

Service	Installation Rates (FY 2005) ¹	Projected Annual Rates of CBOC Facility ²
<i>Utility Consumption</i>		
Electricity (kWh)	148,323,572	450,000
Gas (ccf) ³	1,606,640	30,000
Water (gal)	447,864,000	560,000
<i>Waste Generation</i>		
Sanitary Wastewater (gal)	258,562,000	220,000
Municipal Solid Waste (lb)	4,826,596	43,000
Medical Waste (lb)	1,527,128	1,100
Hazardous Waste (lb)	16,716 ⁴	< 100 ⁵

Notes: FY=fiscal year; kWh=kilowatt hour; ccf=hundred cubic feet; gal=gallon; lb=pound

¹ Source: McNitt-Stewart, 2006 (except for natural gas and hazardous waste data)

² Projected from metrics based on existing Barquist Army Health Care Facility (25,000 ft²). Barquist data source (except for natural gas and hazardous waste data): McNitt-Stewart, 2006

³ Source: Stiles, 2006

⁴ Source: Leadore, 2006

⁵ Source: Mitchell, 2006

2.4.1 Utility Requirements

Due to the similarities between both facilities, the projected utility consumption by the proposed CBOC is assumed to be proportional on a square foot basis to those of the Barquist facility.

2.4.1.1 Electricity

The Potomac Edison Power Company (a subsidiary of Allegheny Power Company) provides power to Fort Detrick through two 230-kilovolt (kV) power lines. Due to the energy-intense nature of research activities conducted at Fort Detrick, the demand for electricity at the Installation is high. The total electrical consumption for the entire Installation in FY 2005 was approximately 148 million kilowatt hours (kWh). The projected electrical consumption rate for the operations of the proposed CBOC would be 450,000 kWh per year, approximately 0.3 percent of the Installation's total during FY 2005.

2.4.1.2 Water Supply

The principal source of Fort Detrick's water supply is from the Monocacy River and processed through the Fort Detrick Water Treatment Plant (WTP). In FY 2005, Fort Detrick's WTP produced approximately 450 million gallons of water. Operation of the CBOC facility is projected to consume 560,000 gallons of water per year, approximately 0.1 percent of the Installation's total during FY 2005.

2.4.1.3 Natural Gas

Natural gas is supplied by the Washington Gas Company (Frederick Division) to Fort Detrick and is used primarily by the steam boiler plant (Building 190) and incinerators. The steam boiler plant has the ability to burn both natural gas and oil, with natural gas being the primary fuel when economically feasible.

The total natural gas consumption for the entire Installation in FY 2005 was approximately 1,600,000 hundred cubic feet (ccf). The projected gas consumption rate for the operations of the proposed CBOC would be 30,000 ccf per year, approximately 1.9 percent of the Installation's total during FY 2005. At this time there are no established design details about the potential heating equipment; however, for the purposes of determining the environmental impacts, it is assumed that the CBOC would install and operate two new gas-fired boilers, similar to those used at the existing Barquist facility.

2.4.1.4 Sanitary Wastewater

Wastewater from the CBOC would be discharged to the Fort Detrick sanitary sewer system for treatment at the Installation's wastewater treatment plant (WWTP). Fort Detrick Regulation 200-7 contains requirements for discharge of non-domestic wastewater to the Installation sanitary sewer system. As a new user of the sanitary sewer system, VAMC would be required to submit a New User Discharge Authorization to the USAG Safety, Environment, and Integrated Planning Office (SEIPO) at least 180 days prior to any scheduled discharges.

The total amount of sanitary wastewater generated and treated by Fort Detrick during FY 2005 was approximately 259 million gallons. Wastewater generated by the proposed CBOC is projected to be 220,000 gallons per year, approximately 0.1 percent of the Installation's total during FY 2005.

2.4.2 Waste Management

In light of the similarities, the projected amounts of waste generated by the proposed CBOC are assumed to be proportional on a square foot basis to those of the Barquist facility. Although the exact operational details of waste management for the proposed CBOC has not been determined at this time, it is anticipated that the VA would pursue interservice support agreements with USAG for the removal of municipal, medical, and hazardous wastes. Under these agreements, management of wastes would be in accordance with Federal, state, and local regulatory requirements. There are no radiological wastes anticipated from the proposed CBOC.

2.4.2.1 Municipal Solid Waste

Waste materials that cannot be recycled are transported to the Incinerator Plant (Building 393) for processing in one of the two existing municipal waste incinerator units at Fort Detrick. Residual ash from the incinerators is transported by DIS personnel to the Fort Detrick Municipal Landfill, a permitted sanitary landfill located in Area B of the Installation, for ultimate disposal.

Minimal amounts of household-type solid waste (paper and plastics) would be generated from administrative activities during operation of the proposed CBOC. The total amount of municipal solid waste generated by the Installation during FY 2005 was approximately 5 million pounds. The solid waste generated from the proposed CBOC is projected to be 43,000 pounds per year, approximately 0.9 percent of the Installation's total during FY 2005.

2.4.2.2 Medical Waste

Medical waste at Fort Detrick is handled and incinerated in accordance with the Centers for Disease Control and Prevention (CDC)/National Institute of Health (NIH) guidelines (USAG,

2003a). All medical waste generated at the CBOC would be disposed at the incinerator plant located in Building 393 in Area A. The resultant ash is then transported via truck to the permitted sanitary landfill at Area B.

The total amount of medical waste generated by the Installation during FY 2005 was approximately 1.5 million pounds. The medical waste generated from the proposed CBOC is projected to be 1,100 pounds per year, approximately 0.1 percent of the Installation's total during FY 2005.

2.4.2.3 Hazardous Waste

The handling and use of hazardous materials during operation of the proposed CBOC would be in accordance with Occupational Safety and Health Administration (OSHA) standards set forth in CFR Title 29, Part 1910, subpart H. Management of hazardous wastes would be subject to regulation under CFR Title 40, Parts 261 through 265 and/or COMAR, Title 26, Subtitle 13. It is likely that the VA and USAG would establish interservice support agreements for the disposal of hazardous wastes. The waste management personnel would be responsible for removal of all hazardous wastes generated during operation of the proposed CBOC using a permitted hazardous-waste transporter and for disposal at a permitted hazardous waste treatment, storage, and disposal (TSD) facility.

The total amount of hazardous waste generated by the Installation during FY 2005 was approximately 16,700 pounds (Leadore, 2006). During FY 2005, the Barquist facility generated very minimal hazardous wastes (Mitchell, 2006). Most of Barquist's hazardous wastes were expired pharmaceuticals (returned to manufacturing companies by pharmacy); minimal amounts of universal wastes (i.e., batteries and printer cartridges, which are collected and recycled by USAG); and minimal amounts of silver from the dental facility (USAG's silver recovery program collects and recycles the silver) (Leadore, 2006). The proposed CBOC is expected to generate similar types of hazardous wastes, and therefore, the projected annual amount of hazardous waste that would require disposal is expected to be less than 0.6 percent of the total hazardous wastes typically generated by the Installation during a fiscal year.

2.5 SAFETY

Adverse impacts to human health and safety may occur both during the construction and operational phases of the project. The health and safety of construction workers and operational employees in the proposed CBOC are protected by adherence to accepted work standards and regulations set forth by the Occupational Safety & Health Act (29 CFR 1910, and 29 CFR 1926, *Safety and Health Regulations for Construction*) and COMAR (09.12.20). All construction contractors and CBOC employees would be required to comply with these regulations.

A comprehensive Accident Prevention Plan (APP) that fulfills the requirements established by the USACE *Safety and Health Requirements Manual* (USACE, 2003) would be developed for the proposed CBOC. In addition to compliance with applicable DA, USAG, and other governmental safety regulations, the APP would provide for the integration of corporate safety, health, and environmental policies into work and management activities. It would incorporate project safety reviews and job hazard assessments, a work permit program, use of Personal

Protective Equipment (PPE), ongoing safety training, regular safety meetings, and emergency response capability, as well as accident/incident reporting and follow-up investigations.

The VAMC holds itself and its subcontractors responsible for the safety and health of employees and the communities in which they work. VAMC management's commitment to safety would include budgetary resources for safety training and certification for the employees and procurement of all necessary PPE.

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3.0 ALTERNATIVES

This section discusses the alternatives selection process and defines the alternatives that were considered in this EA. The implementing procedures for NEPA establish a number of policies for Federal agencies to follow in order to avoid or minimize the adverse effects of their actions. Among these policies is the use of the NEPA process to identify and assess reasonable alternatives to the Proposed Action that would avoid or minimize adverse effects (40 CFR 1500.2(e)). The policies also intend that the NEPA process should be more useful to decision-makers and the public, should emphasize real environmental issues and alternatives, and should avoid the presentation of extraneous background data (40 CFR 1500.2(b)).

3.1 ALTERNATIVES SELECTION PROCESS

Using data from CARES, the VA determined that the VISN 5 service area would experience a rapid increase in veterans seeking health care services over the next several years, which established the need for the Proposed Action. As part of the joint initiative discussed in Section 1.1, the VA and DoD were presented with the opportunity to enter into an agreement for the exchange or sharing of resources that would improve the efficiency of health care services. Such an agreement could include the sharing of administration and buildings, equipment and facilities, medical personnel, and various other health care resources. Accordingly, the collaboration between the VAMC and DoD would enhance the medical services in the north-central portion of the VISN 5 service area and also meet the objectives of the joint initiative to maximize healthcare resources via interagency partnerships. In addition to the VAMC Martinsburg, other VA health care facilities are currently coordinating with Federal agencies to establish new CBOCs throughout the VISN 5 region.

The VISN 5 network office helped the VAMC Martinsburg develop the proposal for a new CBOC. During the proposal process, the following criteria were established to ensure that the most reasonable siting and design decisions were made:

- Location – The site must be located within the VISN 5 service area and adjacent, or in close proximity, to existing DoD health care facilities;
- Size – The facility was sized based on demand and services being provided and shared by the VA and DoD;
- Accessibility – The site should be within close proximity to a highway or freeway;
- Utilities – Utility service connections should be reasonably accessible;
- Public Transportation – The facility should be served by a public transportation system;
- Environmental – The project property should not have any known environmental issues that would preclude or substantially delay the implementation of the Proposed Action; and
- Availability – The project property should not conflict with other development projects in the vicinity of the host site.

Fort Detrick was identified as the most practicable choice, because the Installation already hosts the Barquist Army Health Care Facility, which is a DoD medical facility. The site adjacent to the Barquist facility was preferred also because of its location and accessibility and because of

the availability of adjacent vacant land, which would minimize environmental impacts. As a result, the Martinsburg VAMC undertook to collaborate with Fort Detrick for the construction and operation of a new CBOC adjacent to the Barquist facility that would accommodate the health care demands for veterans while satisfying the objectives of the VHA/DoD joint initiative. The VISN 5 Health Care Planner preliminarily designed the facility to meet CBOC building specifications. The VA, U.S. Army medical staff, Fort Detrick's Planning Staff, and the VAMC provided input for the preliminary design.

3.2 REASONABLE ALTERNATIVES

VAMC Martinsburg's objective was to establish a CBOC facility that would satisfy the initiative of sharing VHA and DoD resources in the north-central portion of the VISN 5 service area. After screening other potential DoD facilities in that defined area, VAMC Martinsburg determined that Fort Detrick offered the most practicable location for the CBOC based on siting and design criteria outlined in Section 3.1. The VAMC developed a proposal to site the CBOC on Fort Detrick, for multiple reasons including: the site would be in the north-central portion of the VISN 5 service area; it is adjacent to a DoD health care facility (Barquist Army Health Care Facility); it is vacant land currently; and it would not interfere with future development plans at the Installation.

If the Proposed Action could not reasonably be located adjacent the Barquist facility, then the VAMC would not have initiated the proposal for a new CBOC. No other sites on or near Fort Detrick were considered beyond the screening of other DoD facilities mentioned in the previous paragraph. Therefore, only two alternatives were identified for detailed evaluation in this EA, the Proposed Action (to construct and operate a CBOC at Fort Detrick) and the No Action (no-build option).

The No Action Alternative has been included in accordance with CEQ regulations [40 CFR 1502.14(d)]. Although it would not satisfy the purpose and need for the project, the No Action Alternative establishes the baseline against which the impacts of the Proposed Action can be compared.

3.2.1 The Proposed Action – Construction and Operation of a Veterans Affairs Community-Based Outpatient Clinic (CBOC) at U.S. Army Barquist Health Care Facility, Fort Detrick, Maryland

Details of the construction and operation of a new CBOC by the VAMC was presented in Section 2.1 and 2.2. This is the alternative preferred by the VAMC and USAG. Implementing the Proposed Action would satisfy the goals of the VHA/DoD joint initiative to share health care resources and, more importantly, it would help alleviate the rising demand for health care services from the veterans within the VISN 5 service area. Furthermore, the Proposed Action would enhance the available health care services in the region, strengthen Fort Detrick's mission to develop joint medical logistics, and maximize the value of the Installation's real property assets.

3.2.2 No Action Alternative

Under the No Action Alternative, the VAMC would not construct and operate a CBOC at Fort Detrick and would maintain the *status quo* at the VAMC Martinsburg. The VAMC would continue to serve the growing demands without the benefits of shared resources, including the maximizing of shared health care resources in a single location and the opportunity to provide specialty services that would otherwise be unavailable in the VISN 5 service area. The VAMC medical personnel would most likely be working under strained conditions due to limited staff support.

The No Action Alternative is expected to result in limited health services for VISN 5's veterans and losing the cost and social benefits that would result from agency partnerships. Fort Detrick's military community would lose the benefits of having access to increased medical services and an upgraded health clinic. Furthermore, the No Action Alternative would maintain the longer driving distances to VAMC services for Fort Detrick's regional veterans, which would result in higher vehicle emissions and adversely impact the regional air quality at higher rates.

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4.0 AFFECTED ENVIRONMENT

This section addresses aspects of the environment that may potentially be impacted due to the construction and operation of a Veterans Affairs (VA) Community-Based Outpatient Clinic (CBOC) in Area A of Fort Detrick, Maryland. The following description of the affected environment relies mainly on recent site visits, the Environmental Baseline Survey (EBS) conducted for the project property, and previous NEPA documentation on Fort Detrick projects (see Section 1.3).

4.1 LOCATION AND LAND USE

The proposed CBOC would be constructed on approximately 3.4 acres of vacant land along Porter Street within Fort Detrick Area A (see Figure 2-1). The site is on the northeast side of, and adjacent to, the Barquist Army Health Care Facility. The subject property is bounded by a power line easement to the northeast, by an NIBC parking lot (under construction) to the northwest, and by Porter Street to the southeast. Existing land use at the project site is currently vacant grassland (formerly an agricultural field) with two mature trees. Approximately 10 feet (ft) north of the southwest subject property boundary, there is a 5-ft wide grassy ditch, oriented northwest to southeast, which terminates at a culvert next to Porter Street (Figure 2-1).

The Fort Detrick Master Plan designated the site for future use as “Research, Developmental, Testing, and Evaluation (RDTE)” land (USAG, 2003a). Implementation of the Proposed Action would include changing the subject site land use classification from “RDTE” to “Medical/Dental”, which is consistent with the land use classification of the adjacent property on which the Barquist facility is located.

4.2 CLIMATE

The climate of Frederick County is temperate continental, with four distinct seasons. The summers are typically short and warm. Winters are mild with occasional cold periods. Because it is located in the valley floor, Frederick County climate is heavily influenced by the Catoctin Mountains, which trend north-south and are located approximately 5 miles (mi) to the west of the project location.

The average annual temperature for Frederick County is 54 degrees Fahrenheit (°F), although historical extremes range from -12°F to 109°F. The prevailing wind direction is from the west to southwest, with an annual average velocity of 7.4 miles per hour (mph). The average annual precipitation for Frederick County is 40.8 inches (in), with an average annual snowfall of 26.4 in. Over the past 55 years, many extreme weather events have been recorded, including tornadoes, floods, hail storms, heavy thunderstorms and drought (USAG, 2003a).

4.3 GEOLOGY

Fort Detrick is located in the Frederick Valley subdivision of the Piedmont Plateau Physiographic Province (Appalachian Highlands). The plateau, bounded by the Catoctin Mountains to the west, is characterized by rolling hills interspersed with incised stream valleys. This region is part of a large fold structure, with the Catoctin Mountains being a member of the South Mountain Anticlinorium, and Frederick Valley being composed of the Frederick Syncline.

Although Frederick County elevations range from 294 ft above sea level to almost 2,000 ft in the Catoctin Mountains, Fort Detrick's elevations range from 320 to 400 ft (USAG, 2003a; USGS 1993).

The bedrock below Area A consists of fractured limestone and dolomite of the Upper Cambrian Frederick Formation, which is broken into the Lime Kiln, Rocky Springs Station and Adamstown members. However, Adamstown is the only member underlying the subject property and buildings within 0.25 mi. The Adamstown member is a fine-grained, thin-bedded, dark grey limestone. The Rocky Springs member, a thinly bedded limestone with dolomite and layers of coarse sand, underlies the western section of Area A (USAG, 2003a). Karst topography is a common surficial feature of the Frederick Formation; however, no sinkholes have been documented or observed on the subject property.

Maryland is located in Seismic Zone 1, which has a low risk of experiencing a damaging earthquake in the next 50 years (Maryland Geological Survey, 2005).

4.4 SOILS

The soils associated in the Fort Detrick area are typically deep, well drained, and fertile and overlie the grey limestone of the Frederick Formation. Three soil series, namely Duffield, Adamstown and Hagerstown, are found at Fort Detrick. Of the three, only a Duffield-Ryder silt loam was identified at the project site during the EBS investigation. Duffield-Ryder silt loams are marked by a shallow slope (0 to 3 percent) and a deep, well-drained soil with low to moderate permeability (USAG, 2005b).

4.5 WATER RESOURCES

4.5.1 Surface Water

Fort Detrick is located in the Lower Monocacy watershed, part of the Monocacy River Sub-Basin of the Upper Potomac Basin. The Monocacy River originates at the Maryland-Pennsylvania border and flows in a southerly direction about 1.5 mi east of Area A, joins the Potomac River approximately 15 mi south of the City of Frederick, and eventually discharges into the Chesapeake Bay. It is the largest tributary of the Potomac River, which in turn is the second largest tributary of the Chesapeake Bay (USAG, 1998).

The Monocacy River is a warm water fishery and has been classified by the State of Maryland as Recreational Trout Waters and Public Water Supply (Use IV-P) (COMAR 26.08.02). Carroll Creek is a major tributary of Monocacy River that is located just outside the western boundary of Area A and is designated as a Natural Trout Waters and Public Water Supply (Use III-P). Fort Detrick relies on the Monocacy River as its principal source for drinking water, which is discussed in Section 4.13.1 (Water Supply).

Fort Detrick discharges storm water under its current NPDES permit to Carroll Creek, which drains Area B and the western portion of Area A. The eastern portion of Area A drains into Federal Emergency Management Agency (FEMA) Tributaries 9 (Detrick Branch) and 10 (Two Mile Run) of the Monocacy River. Major surface waters on Area A include a 3.3-acre

recreational pond (Nallin Farm Pond), and a large stormwater management pond adjacent to the barracks (USAG, 2003a).

The project site is relatively flat. Runoff from the site currently flows over grassy land in a southerly direction into grassy ditches that parallel Porter Street and the contiguous border of the project site and the Barquist clinic. Runoff flow continues downstream through a series of storm structures that eventually discharge to Detrick Branch of the Monocacy River. Existing storm water facilities located near the project site are discussed in the Section 4.13.4 (Storm Water).

4.5.2 Groundwater

The Frederick area of the Piedmont Plateau Physiographic Province has aquifers that typically yield high water quality and volumes due to the numerous fractures and joints in the limestone bedrock. Although the groundwater aquifer under Area A is very productive, this groundwater is not used for human consumption. Portions of the groundwater beneath Area A flow generally to the southeast, towards the Monocacy River (USAG, 2004b). The Fort Detrick community obtains their drinking water principally from the Monocacy River (see Section 4.13.2 Water Supply).

Approximately 3,000 ft southwest of the project site, a trichloroethylene (TCE) spill that impacted groundwater has undergone remediation and is currently being monitored. Groundwater in the TCE spill site area flows in a southwesterly direction, which suggests that TCE-contaminated water did not, and likely will not, migrate onto the proposed CBOC site (USAG, 2004b). No. 6 fuel has also leaked from the underground Boiler Plant tanks at Building 190, located 4,250 feet south-southwest of the project site. It is unlikely that the project site has been impacted by these spills. No sources of groundwater contamination were identified in the vicinity of the project site.

4.5.3 Floodplains

Executive Order (EO) 11988 (The White House, 1977a) requires Federal agencies to avoid, to the extent possible, long-term and short-term impacts on floodplains that may result from their actions. A floodplain study on Fort Detrick Area A was conducted by the USACE and completed in April 2005 (USACE, 2005b). The purpose of the study was to determine the existing 5-, 10-, 25-, 50-, and 100-year flood elevations and to delineate the respective floodplains for Area A. Tributary 10 (Two Mile Run) is the only water body that was identified as a potential source of flooding within Area A. Two Mile Run, located over 2,000 ft to the east of the project site, flows in an easterly direction from Nallin Farm Pond to the Monocacy River. The project site is not located in, or adjacent to, any of the floodplains delineated in the flood analysis.

4.5.4 Wetlands

In 1999, the U.S. Fish and Wildlife Service (USFWS) identified three wetland areas in Area A (USFWS, 1999), which are located adjacent to each other in the northeast section of the Area A property. The USACE later surveyed the areas and refined the wetland locations throughout all of Fort Detrick (USACE, 2005a). The nearest wetland to the subject site is an unnamed area located approximately 2,000 ft to the northeast. No wetlands are present on the project site.

4.6 BIOLOGICAL RESOURCES

The project property has historically been undeveloped. The area was cleared prior to 1950 when Fort Detrick bought the subject property as part of the 502-acre Nallin Farm. After Fort Detrick acquired the subject property, the area remained structure-free, with occasional mowing for haying purposes (Federline, 2005). Currently, there are two large trees located on the project site, which have been tagged and recorded through the Environmental Management Office. Tree #643 is located near the eastern corner of the subject property. Tree #269 is located near the western corner (Boyland, 2005). Both trees are visible on aerial photographs from 1975-76 (see Figure 2-1 previous). Beneath tree #643, personnel observed numerous medium-sized mammal burrows (possibly made by groundhogs); a herd of white-tailed deer (*Odocoileus virginianus*) containing approximately 12-16 animals was observed on fields adjacent to the site. Aside from the burrows and scattered deer hoof prints and droppings, there was no evidence of animal presence or activity at the property site. No protected species or their habitats exist on the subject property (USAG, 2004a).

4.7 AIR QUALITY

4.7.1 Regional Air Quality

Air quality in Frederick County is regulated by the Maryland Department of the Environment (MDE) Air and Radiation Management Administration (ARMA), which administers Federal and state air quality standards. The Clean Air Act (CAA) charged the U.S. Environmental Protection Agency (EPA) to generate National Ambient Air Quality Standards (NAAQS) to control common pollutants: carbon monoxide (CO), lead (Pb), nitrogen oxides (NO_x), particulate matter (PM₁₀, PM_{2.5}), sulfur dioxide (SO₂), and ozone (O₃).

Under these standards, a geographic location with pollutant levels below NAAQS is said to be in “attainment”, while higher levels are in “nonattainment”, and must devise a plan to reduce emissions. A location may be in attainment for a particular pollutant, but nonattainment in another. A Prevention of Significant Deterioration (PSD) plan is needed for an attainment area to keep its current status. If an area is in nonattainment status, its constituent organizations (i.e. state, tribal and local governments) must create a plan to prevent pollutant degradation and attempt to reduce pollutant levels to below national standards.

Prior to 1997, the EPA used a 1-hour ozone standard as the primary measure of the pollutant. In 1997, the EPA proposed a shift from a 1-hour to an 8-hour ozone standard. Resulting litigation postponed implementation until 15 April 2004, when EPA finalized the first phase of the ozone implementation rule. On 15 June 2005, the 1-hour ozone standard used since 1971 was revoked in favor of the more restrictive 8-hour ozone standard. A state must submit a State Implementation Plan (SIP), which is a required document explaining how pollutant emissions will be reduced in nonattainment areas. The Maryland SIP is due at EPA by 5 April 2008.

As was discussed in Section 2.3.6, the Washington, DC-MD-VA region, which includes the Fort Detrick area, is currently classified as a *moderate* nonattainment area for O₃ and nonattainment for PM_{2.5} (USEPA, 2006). At this time, NO_x and volatile organic compounds (VOCs), which are the precursor pollutants to O₃, are to be evaluated and controlled in O₃ nonattainment regions. The established emissions rate thresholds for a *moderate* O₃ nonattainment area are 100 tons

NO_x per year and 100 tons VOCs per year. The EPA has given the PM_{2.5} nonattainment areas in Maryland until 2010 to reduce emissions below Federal standards.

A General Conformity Rule requires Federal agencies to perform *conformity reviews* to demonstrate that their actions do not interfere with SIPs. In general, the conformity review is the process used to evaluate and document project-related air pollutant emissions, local air quality impacts, and the potential need for emission mitigation. (There are several exceptions to the conformity review requirement, such as for projects that require Title V Part 70 Operating Permits.) If results of a review reveal that a Federal action interferes with SIP compliance, then a *full conformity analysis* must be performed.

4.7.2 Fort Detrick Air Pollution Sources

The primary stationary sources of air pollution at Fort Detrick are boilers, incinerators and emergency diesel generators. Commuter and on-site traffic emissions are the primary mobile sources of air pollution. Because the stationary sources on Fort Detrick are under common control in a localized area, they are grouped together in a single Title V permit. Title V of the CAA regulates “major sources” of air pollution, which occurs when local emissions exceed regional threshold levels for regulated pollutants. Regulated pollutants encompass a wide variety of chemicals, including criteria air pollutants or their precursors (e.g. VOCs and NO_x contribute to ozone production), hazardous air pollutants (HAPs), toxic air pollutants (TAPs) and Class I and Class II ozone-depleting substances mentioned in Title V.

Fort Detrick is considered to be a major source of NO_x and SO_x emissions, which exceed the Federal thresholds. The Installation is the third-largest producer of NO_x in Frederick County, primarily due to emissions from boilers, incinerators and emergency generators. A summary of the Fort Detrick emissions in 2004 is included below in Table 4-1.

Table 4-1. Actual Criteria Air Pollutant Emissions at Fort Detrick in 2004

Pollutant	Boilers (Heaters)	Incinerators	Diesel Generators	Tanks	Surface Coating Operations	Total (Tons)
CO	16.62	1.3	1.7	0	0	19.62
NO _x	108.09	5.43	6.74	0	0	120.26
PM ₁₀	54.4	7.65	0.11	0	0	62.16
SO ₂	176.97	4.04	1.03	0	0	182.04
VOCs	1.0	0.18	0.17	1.52	0	2.87

Source: Wolf, 2006

4.7.3 Hazardous and Toxic Air Pollutants

Hazardous or Toxic Air Pollutants (HAPs, TAPs), as defined in COMAR 26.11.15.01 are compounds that pose potential health concerns. Title I of CAA currently identifies 188 HAP/TAPs, which include volatile organic chemicals, pesticides, herbicides, and radionuclide that present tangible hazard, based on scientific studies of exposure to humans and other mammals. Maryland has also enacted more comprehensive restrictions, which complement the CAA regulations.

The Fort Detrick Air Program Manager has estimated the amount of HAPs (including MDE TAPs) produced by the Installation. Different sources of emissions were considered, including fugitive emission sources (e.g. gasoline storage tanks). It is estimated that 0.0427 and 0.4301 tons of HAPs were releasing in 2002 and 2004, respectively (USAG, 2004b; USAG, 2005b). Primary HAP/TAP sources include incinerators, fuel storage and fuel dispensing activities.

4.8 CULTURAL RESOURCES

No historic resources are located on the proposed CBOC site. The closest structures on the National Register of Historic Places (NRHP) in Area A are the Nallin Farm Complex (Buildings 1652, 1655, 1661) and the One-Million-Liter Test Sphere (Building 527), which are located 0.5 mi to the northeast of the project site and 2,000 ft to the southwest, respectively (USAG, 2003a). Other Installation buildings which are eligible to be on the NRHP are Buildings 190, 375, 1301, 1302, 1303-06, 1412, 1414, 1415 and 1653. The closest buildings within 0.5 miles are: 1412, 1652, 1655, 1611 and 1653 (USAG, 2005a). None of the buildings are on the subject property.

There are no known archaeological resources on the subject property. The two closest recorded archaeological sites are within 0.25 miles of the property (USAG, 2003a). Locations 18FR680 and 18FR681 consist of areas with scattered lithic artifacts within the soil plowzone. In 1993, a phase I survey determined that these locations, while historic locations, were not eligible for further study, as they lack integrity and research potential (USAG, 2005a).

4.9 SOCIOECONOMIC CONDITIONS

The Installation is located in the City of Frederick, Frederick County, Maryland. This Installation is located approximately 50 mi northwest of Washington, DC and 50 mi west of Baltimore, MD. In the 2000 census, Frederick County's population was 195,277, with a projected growth of 243,200 by 2010 and 287,900 by 2020 (Maryland State Data Center, 2005). The county's rapid growth is partially due to the availability of land and cheaper home prices, in addition to its proximity to the Washington-Baltimore metropolitan areas. Frederick City contains approximately 29.6 percent of the Frederick County population with a total of 57,767 residents (USAG, 2005b).

Frederick County in 2005 has a civilian labor force of 118,570, of which 114,824 are employed. The county's unemployment rate of 3.2 percent is well below current Maryland and national averages (Maryland Department of Labor, 2005). Fort Detrick is the largest employer in Frederick County, with a mix of military and civilian workers. Aside from Fort Detrick the service industry is the largest employment category with 34.1 percent of the workforce in 2000. Other dominant employment categories in Frederick County are government jobs, (20.0 percent), wholesale/retail (14.3 percent), and construction (10.1 percent) (Frederick County Division of Planning, 2004). Median household earnings in Frederick County were estimated at \$68,000 in 2002, which is more than \$9,000 above the Maryland median of \$58,600 (USAG, 2003a).

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4.10 NOISE

Fort Detrick is considered a relatively quiet environment with no significant noise emitters on the Installation. Minor sources of noise at Fort Detrick include the steam plant (Building 190), the generator facilities in Buildings 1673 and 1677, vehicular traffic, and the carpenter shop in Building 199 (USAG, 2005b). The bugle and cannon are exercised Monday through Friday at 5:00 p.m. In addition, noise is generated from current construction activities at Fort Detrick. Based on measurements of noise performed on the Installation, the noise generated from operations is compatible with residential use (USAG, 2005b).

Maximum noise level standards must be met for residential land use at the Installation boundary for all applicable activities within Fort Detrick. If warranted, a noise level monitoring system using an approved sound level analyzer may be located at or within the property line of the receiving property. State of Maryland (COMAR 26.02.03.03 A(2)(a)) and the City of Frederick (Ordinance G-02-9) regulations state that noise levels from construction or demolition activities must not exceed 90 decibels on an A-weighted scale (dBA) at the boundaries of a construction/demolition site during daytime hours (i.e., 7:00 a.m. through 10:00 p.m.). However, the Installation has established that noise levels emanating from construction or demolition activities must not exceed 90 dBA at the NIBC property line during the hours of 7:00 a.m. through 4:30 p.m. Maximum noise levels cannot exceed specified industrial or residential noise level standards during the hours of 4:30 p.m. through 7:00 a.m. Construction activities must not permit prominent discrete tones and periodic noises (e.g., dump truck tail gate banging) that exceed a level that is 5 dBA lower than the noise level standard established in this requirement. Blasting operations associated with construction and demolition activities are exempt from COMAR and the City of Frederick regulatory requirements for noise during daytime hours. Any construction/demolition activities conducted outside the hours specified in this requirement, including the weekend, must be pre-approved through the Installation Command (USAG, 2003a).

The principal contributors to ambient noise levels near the project site are the passing traffic experienced on Porter Street and the Barquist facility's parking lot and construction activities located west of the Barquist facility and south of Porter Street. The resulting noise levels at the project site are short-term and temporary and do not currently pose any health hazards.

4.11 ODORS

Primary odor sources on the Installation include industrial sources, such as the steam plant (Building 190) and Fort Detrick Incinerator Complex (Building 393), and agricultural sources, i.e. feed preparation for the NCI-Frederick. The steam plant is used for heating and production of steam for sterilization purposes.

The Incinerator complex consists of two municipal and two medical waste incinerators, which also produce steam as a byproduct. All medical waste produced at Fort Detrick is currently processed at the incinerator plant. The incinerator stacks are fitted with state-of-the-art emission control equipment, and monitored to ensure odors and TAPs are minimized.

Transient offensive odors are occasionally associated with steam heating (autoclaving) and incineration associated with the NCI-Frederick Animal Production Area (Buildings 1021 through 1039 and Buildings 1044 through 1049). The autoclaving process is used to sterilize animal feed for germ-free laboratories and animal waste. NCI-Frederick disposes of laboratory carcasses by incineration. Complaints about odors prompted a 1989 study, which found that the primary odor sources were from protein degradation, microorganisms and effluent waste (BKA, 1989; USAG, 2005a). The CBOC is located over 4,000 ft to the east of the NCI-Frederick facilities.

Other odors associated with routine events on the Installation include: petroleum smells emanating from occasional spills, garbage odors from municipal waste transport, and minor odors associated with the Fort Detrick's Wastewater Treatment Plant (WWTP). There have been very few civilian complaints about odors emanating from Fort Detrick, which typically are associated with odors originating from the NCI-Frederick Animal Production area.

4.12 TRANSPORTATION AND TRAFFIC

4.12.1 Regional and Local Access

Fort Detrick is located in the northwestern portion of Frederick, Maryland, approximately 50 mi northwest of Washington, DC and 50 mi west of Baltimore. The Installation can be reached via a number of interstate and U.S. highways, including I-70, I-270, US 40, and US 15. I-270 and I-70 are the primary arterials that connect Fort Detrick to the Washington, D.C. and Baltimore metropolitan areas, respectively, and other significant central business districts in the region. The following are the principal roadways that provide vehicular access to Area A of Fort Detrick:

- Frederick Freeway or Bypass (US 15) – A two-lane divided highway serving both regional and local commuter traffic in the City of Frederick. Near Fort Detrick, US 15 interchanges with Rosemont Avenue, West Seventh Street, and Opossumtown Pike;
- Rosemont Avenue – A major artery serving north-south travel in Frederick and forming the western boundary of Area A;
- West Seventh Street – A minor north-south artery that serves as the primary access route to Area A of Fort Detrick;
- Opossumtown Pike – A major north-south artery that forms the eastern boundary of Area A; and
- Military Road – A southwest-northeast minor artery that runs along the southern boundary of Area A.

4.12.2 Fort Detrick Area A Access Gates and Roadways

There are four gates of entry at Fort Detrick, all of which are posted with security personnel. Each of these gates is located on a thoroughfare that directly connects to US 15. All Installation visitors (i.e., non-decaled vehicles) are required to enter through the Main Gate (recently re-opened for full operation end of November 2005) and commercial trucks are required to enter through Old Farm Gate.

Access to Main Gate is located at the signalized intersection of West Seventh Street and Military Road. This gate is open 24 hours. Excluding commercial trucks, Main Gate provides the central access point into Area A and direct access to two of the three primary roads within the Installation. Commercial trucks currently enter via the Old Farm Gate, but will be temporarily rerouted to the Main Gate when Old Farm Gate closes for renovations. The majority of inbound and outbound traffic occurs at Main Gate. The new configuration provides additional inbound lanes that separate the decaded from the non-decaded vehicles to increase the efficiency of inspections and to facilitate the influx of traffic to prevent vehicle queuing from spilling out into the intersection. The new design of the Main Gate also allows for approximately 75 vehicles to queue within the Fort Detrick perimeter, providing better security and significantly reducing congestion on West Seventh Street.

The other three gates are Rosemont, Opossumtown, and Old Farm. Rosemont Gate provides access to the Installation from the west. Rosemont Gate is located just east of the intersection of Rosemont Avenue and Montevue Lane, which is controlled by a traffic signal. Rosemont Gate was recently upgraded to accommodate both incoming and outgoing traffic and to allow more incoming decaded vehicles onto the Installation for security checks in order to decrease the amount of queued traffic on Rosemont Avenue (USAG, 2005b). Opossumtown Gate is on the eastern border of the Installation and is located at the intersection of Porter Street and Opossumtown Pike. Old Farm Gate is located at the intersection of Rosemont Avenue and Old Farm Road. All trucks entering the Installation are required to enter through this gate for inspection between the hours of 6:00 a.m. to 6:00 p.m., Monday through Friday.

The roadway network at the Installation comprises primary, secondary and tertiary roadways. Porter Street is a primary road that provides a direct route to the project site from Main Gate and from Opossumtown Gate. Porter Street is a two-lane road with a 25 mph speed limit in front of the project site. As vehicles enter through the Main Gate, traffic is directed to the intersection of Randall Road and Porter Street, which is a four-way stop sign intersection. Randall Road was recently relocated and now provides access to a service area, which includes a gas station and a fast-food restaurant, Sultan Drive, and the US Army Medical Research Institute for Infectious Diseases (USAMRIID) area.

4.12.3 Traffic and Parking Conditions

All reference to levels of service (LOS) are defined by the 2000 Highway Capacity Manual (HCM2000) published by the Transportation Research Board. LOS is a qualitative measure that indicates a road or intersection's functionality. For analysis purposes, HCM2000 defines six LOSs that reflect the level of traffic congestion and qualify the operating conditions of a road or intersection. The six levels are given letter designations ranging from "A" to "F", with "A" representing the best operating conditions (free flow, little delay) and "F" the worst (congestion, long delays) (TRB, 2000). Various factors that influence the operation of an intersection include speed, delay, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. USAG and the USACE-Baltimore District performed an Installation-wide transportation study (*The 2003 Installation-Wide Transportation Study for Fort Detrick*) to assess and provide recommendations for traffic conditions on and surrounding the Installation (STV, Inc., 2003).

The transportation study found the following surrounding off-Installation intersections to be operating at unacceptable LOSs:

- Rosemont Avenue and Montevue Lane – LOS F during the PM peak hour;
- Rosemont Avenue and Military Road/Baughmans Lane – LOS F during both the AM and PM peak hours;
- Rosemont Avenue and US 15 northbound (NB) Ramps/Second Street – LOS E during the AM peak hour and LOS F during the PM peak hour;
- Seventh Street and US 15 southbound (SB) Ramps/Biggs Avenue – the minor street (ramp movements) operates at LOS E during the AM peak hour and LOS F during the PM peak hour;
- Opossumtown Pike and US 15 SB Ramps – the minor street (ramp movements) operates at LOS F during both the AM and PM peak hours; and
- Motter Avenue and US 15 NB Ramps/Pinewood Drive – LOS F during the AM peak hour and LOS E during the PM peak hour.

AM and PM peak hours occurred between the hours of 06:00 through 09:00 and 16:00 through 18:00, respectively.

Installation Entry Gates and Roads

In the past, Main Gate has normally experienced traffic problems during the morning and evening peak traffic periods due to its design and location. The old configuration of Main Gate resulted in long queues, lengthy delays, and poor handling capacity. The new configuration provides for a re-routing of the entrance road, additional inspection lanes and curbed medians for separation of non-decaled from the decaled vehicles, additional guard booths, and an increased queuing area to allow for higher volumes of vehicles to stack within the perimeter of the Installation.

A site visit to the Main Gate in early December 2005 was conducted to observe how the Main Gate's new setup was operating under the heavy traffic loads experienced during peak periods (7:00 a.m.-9:00 a.m., 11:00-1:00 p.m., 4:00 p.m.-6:00 p.m.). Although Main Gate still experienced high traffic volumes during peak periods, very few delays were witnessed. The highest potential for congestion at this entrance occurred during the morning and evening peak hours when the flux of traffic was heaviest and one-sided (inbound-heavy during AM peak and outbound-heavy during PM peak). During the morning, only a few instances of vehicles spilling out into the intersection occurred. It was noted that this congestion occurred mostly because of last-minute lane changes, which resulted in either slower traffic and/or obstruction of lanes. During the evening, outbound traffic was fairly heavy for approximately an hour and a half, but egress movement was fairly steady without any instances of significant backups.

It is expected that the flow of traffic will improve once the introductory period passes and employees and frequent visitors become more accustomed to new traffic patterns. Overall, traffic conditions at the newly configured Main Gate can be described as functioning at fairly good operating levels during the observed periods.

On the Installation, the intersection of Porter Street and Randall Road was observed to experience heavy traffic loads and congestion during the peak traffic hours, including the lunchtime period. A new PX, gas station, and a fast-food restaurant are located just northwest of this intersection. It is anticipated that congestion will decrease and traffic flow at this location will improve when Randall Road is re-opened. Future infrastructure improvements include plans for the addition of a traffic light at this intersection.

Parking

The 2003 Installation-Wide Transportation Study for Fort Detrick indicated that there were approximately 4,722 parking spaces available on the Installation (STV, Inc., 2003). Parking facilities consist of larger lots near USAMRIID and the USAG Headquarters facilities, smaller lots in the southwestern areas of the Installation, and on-street parking throughout the Installation. The existing parking conditions are generally adequate to support the current needs of Fort Detrick, but some areas have localized deficiencies. These conditions relate mainly to the amount of on-street parking and a high proportion of small, irregular, and poorly defined lots (STV, Inc., 2003). A reorganization of parking facilities on the Installation is underway (USAG, 2003a). The parking lot that services the Barquist clinic consists of 89 parking spaces, of which eight are allotted for handicap accessibility.

4.12.4 Public Transportation

Fort Detrick is served by the east-west Blue Route of the Frederick Bus System. The Blue Route provides hourly service between downtown Frederick and the Frederick Towne Mall. In the vicinity of Fort Detrick, the Blue Route has three stops that provide access to Fort Detrick. One stop is at Main Gate on Military Road, the second stop is at the intersection of Military Road and Rosemont Avenue, and the third stop is at the Old Farm Station Shopping Center at Old Farm Road west of the Old Farm Gate. The Blue Route also provides service to the Maryland Rail Commuter transit station in downtown Frederick.

4.13 UTILITIES

4.13.1 Energy Resources

The principal energy demands of Fort Detrick are fulfilled with electricity, natural gas and No. 6 fuel oil. The Potomac Edison Power Company (a subsidiary of Allegheny Power Company) provides power to Fort Detrick through two 230-kilovolt (kV) power lines. Due to the nature of its research, Fort Detrick has a high demand for energy, which has necessitated the expansion of the electrical substation adjacent to the Barquist Army Health Care Facility (Building 1434). The total electrical consumption for the entire Installation in FY 2005 was approximately 148 million kilowatt hours (kWh) (McNitt-Stewart, 2006).

Through the DoD's Enhanced Use Lease (EUL) Authority, Fort Detrick is planning to lease 10 acres of land to Chevron Energy Solutions Company and Keenen Development, for the purpose of constructing and operating a Cogeneration Utility Plant (CUP). The CUP, slated for opening in mid-2007, will be located at least 300 feet north of the subject property and is anticipated to provide reliable electrical power, steam and chilled water for prospective end users on and off the Installation (USAG, 2005b). The planned facility will occupy approximately 10 acres, with a

natural gas-fired utility plant, adjoining auxiliary buildings and a paved parking lot (USAG, 2005a).

The Frederick Gas Company supplies the natural gas needs of Fort Detrick. An annual average of 83 percent of the natural gas provided to the Installation is used by the boiler plant and the waste incinerators (USAG, 2004b). The largest energy consumer on the Installation is the boiler plant, which has 6 boilers. In FY 2005, the Installation consumed approximately 1,600,000 ccf of natural gas (Stiles, 2006).

4.13.2 Water Supply

The Monocacy River is a water supply source for both Fort Detrick and the City of Frederick. Fort Detrick owns and maintains the Installation's water distribution system and relies on the Monocacy River as its principal source for drinking water, withdrawing water at an average rate of about 1.23 million gallons per day (mgd) (USAG, 2005b). The Fort Detrick Water Treatment Plant (WTP), located in Area C, processes the Installation's potable water. The Installation's drinking water meets or exceeds all Federal, state (i.e., COMAR 26.04.01), and DA standards (USAG, 2005b). In FY 2005, Fort Detrick's WTP produced approximately 450 million gallons of water (McNitt-Stewart, 2006).

The nearest water service line to the project site is an 8-in diameter line located along the contiguous border of the Barquist Facility and the project site.

4.13.3 Sanitary Wastewater

Sanitary wastewater generated on the western portion of the Installation travels by gravity flow through the sanitary sewer system to the pumping station adjacent to Building 201, and is subsequently pumped to the eastern portion of the Installation to a point where it can gravity flow to Fort Detrick's Wastewater Treatment Plant (WWTP) located in Area C. Sanitary wastewater generated on the eastern portion of Area A flows entirely by gravity to the WWTP. The wastewater is then treated at the WWTP before being discharged (under an NPDES permit) to the Monocacy River (USAG, 2003a). Based on FY 2005 data, the WWTP operates at 35 to 60 percent of its capacity of 2.0 mgd (BSA, 2006; Grams, 2006). In FY 2005, the total amount of sanitary wastewater treated by the WWTP was approximately 259 million gallons (McNitt-Stewart, 2006).

The nearest sanitary service line to the project site is an 8-in diameter line located along the contiguous border of the Barquist Facility and the project site.

4.13.4 Storm Water

MDE manages the state's storm water discharges through its Stormwater Management Regulations (COMAR 26.17.01 through .12). In accordance with Federal regulations (40 CFR 122.26) and COMAR 26.17.02, construction projects that involve disturbing more than 100 yd³ of earth or 5,000 ft² of land require that ESC and SWM plans be submitted and approved by MDE before construction activities can begin. Requirements and guidelines are published in MDE's *2000 Maryland Stormwater Design Manual, Volumes I & II* and the *Maryland Stormwater Management Guidelines for State & Federal Projects*. Additionally, if the area

disturbed is more than one acre (43,560 ft²), a general permit under NPDES is also required for discharge of storm water during the construction period.

Requirements outlined in FDR 415-10 and 200-5 for SWM and storm water pollution prevention apply to any organization or activity assigned at Fort Detrick, including contracted activities. FDR 415-10 specifically requires written permission from the Directorate of Installation Services (DIS) for any projects that disturb/develop land within the post boundaries. FDR 200-5 specifies requirements for storm water pollution prevention plans (SWPPP), training, inspections, and storm water pollution prevention organization (USAG, 2005c). These documents are currently being revised and may be merged into one primary record.

The storm water drainage in Area A is a mix of open and closed systems. The majority of runoff in Area A is diverted through a collection of surface ditches, inlets, culverts, and storm sewer lines as it drains into Carroll Creek, and Tributary 9 (Detrick Branch) or Tributary 10 (Two Mile Run) of the Monocacy River as discussed in Section 4.5.1 (Surface Water).

The project site is located in a drainage area identified as A-4b, a subshed of A-4, as noted from previous hydrologic studies at the Installation (USAG, 2005c). Drainage area A-4b includes approximately 68.6 acres that drain into Detrick Branch (USAG, 2005c). There are five SWM ponds in Area A-4, two of which are located near the project site: Ponds A-4(1) and A-4(2) (USAG, 2005c). The majority of runoff from the project site flows to the southwest and southeast and into the grassy ditches that direct runoff through two 42 in x 29 in corrugated metal storm drains and into Pond A-4(2). Pond A-4(2) is a small dry retention pond located between the Barquist facility parking lot and Porter Street and also accepts runoff from Pond A-4(1) via box concrete culverts. Pond A-4(1) is located just west of the Barquist parking lot and has recently finished renovation to modify its shape while retaining similar capacity for future developments at the Installation (USAG, 2005c). Pond A-4(2) funnels water through an outflow culvert under Porter Street into a swale located south of Porter Street, and discharges to the new Unaccompanied Enlisted Personnel Housing (UEPH) storm water retention pond, SWM Pond A-4(3), that empties through Outfall A-4.

Construction of a new wet pond at outfall A-3 is being considered by Fort Detrick (USAG, 2005c). This pond is being designed as a regional stormwater management basin to provide post-construction management of stormwater runoff from drainage areas A-3 and A-4.

4.14 WASTE MANAGEMENT

4.14.1 Municipal Solid Waste

The Installation's municipal solid wastes that cannot be recycled are sent to the Incinerator Complex, which consists of two municipal waste incinerators (B-1 and B-4) and two medical waste incinerators (B-5 and B-6). Each of the two municipal waste incinerators has the capacity to incinerate 2,000 lbs/hr and can only accept municipal waste from Fort Detrick (USAG, 2004b). The municipal and medical incinerators can incinerate over 14,000 tons of waste per year; however, the incinerators are operating at approximately 23 percent of their capacity (USAG, 2004b). In FY 2005, the Installation generated approximately 4.8 million pounds of municipal solid waste (McNitt-Stewart, 2006).

Types of waste permitted for incineration at the Fort Detrick municipal waste incinerators are: residential, commercial, and mixed residential and commercial waste. Types of waste that are not permitted for disposal at the Fort Detrick Municipal Landfill include: controlled hazardous substances, liquid waste, special medical waste, radioactive materials, automobiles, large containers such as drums or tanks (unless flattened or crushed and empty of contents), animal carcasses, untreated sewage, truckloads of separately collected yard waste and tires, unless otherwise specifically authorized by a valid permit issued under COMAR.

Residual ash from the municipal waste incinerators is transported to the Fort Detrick Municipal Landfill, a permitted sanitary landfill located in Area B, for ultimate disposal. The Fort Detrick Municipal Landfill permit was renewed on July 11, 2005 and is permitted to operate by the State of Maryland under Refuse Disposal Permit Number 2005-WMF-0327 (Kramer, 2006).

At the end of calendar year 2001, the remaining permitted sanitary landfill capacity reported to the MDE was 1,380,218 cubic yards (yd³). From calendar year (CY) 1997-2001 the Fort Detrick Municipal Landfill accepted 23,911 yd³ of material. The estimated average annual rate of waste disposal based on this five-year average is approximately 4,782 yd³, which includes refuse, fill, and cover material. Using this rate as an indication of future activity, assuming that solid waste quantities do not increase significantly, the Fort Detrick Municipal Landfill will reach its maximum permitted load in 91 years and its maximum permitted capacity in 288 years (USAG, 2004b).

A variety of materials at Fort Detrick are recycled. Recycled materials include newspaper, white paper, cardboard, glass, aluminum cans, steel cans, and various scrap metals. Computer cards and scrap metal are shipped to the Defense Reutilization and Marketing Service (DRMS) at the Letterkenny Army Depot for recycling. Other DRMS facilities are located in Mechanicsburg, Pennsylvania and Fort Meade, Maryland (USAG, 2004b). Waste oil is also recycled at Fort Detrick. A contract recycling firm collects the waste oil from various points on the Installation (USAG, 2004b).

4.14.2 Medical Waste

In general, special medical waste includes human and animal blood or materials soiled with blood, cultures and stocks of infectious agents or materials soiled with infectious agents, syringes, needles, and certain animal bedding. The major generators of medical waste at Fort Detrick are NCI-Frederick (the largest), USAMRIID, and the USDA.

All infectious medical waste is required to be properly packaged for transportation to the disposal site. Special medical waste is collected in 4-millimeter thick, waterproof, tear resistant, non-chlorinated, red plastic bags, and most medical waste is autoclaved or chemically disinfected before leaving the generating facility. Contaminated sharps are handled separately and are stored in combustible, impenetrable, and puncture resistant containers. Packaging and handling procedures for medical waste are to be followed precisely, as directed by immediate supervisors and the Installation Safety Officer. All medical waste is disposed of via the Fort Detrick medical waste incinerators in compliance with Federal, state, and local regulatory requirements (USAG, 2004b).

Each of the Installation's two medical waste incinerators has the capacity to incinerate 1,000 lb/hr (USAG, 2004b). On average, 2 tons per day of medical waste is incinerated. In FY 2005 approximately 1.5 million pounds of medical waste was sent to the medical waste incinerators (McNitt-Stewart, 2006). The incinerators are operated 8 hours a day, 5 days a week, although the capacity to operate 24 hours a day exists. Both incinerators may be operated at the same time, although typically one incinerator is burning while the other is down for routine maintenance (USAG, 2004b).

Ash from the medical waste incinerators is sampled and analyzed, and the analytical results are submitted to MDE. A free liquids test is performed on a quarterly basis, and a Toxicity Characteristic Leaching Procedure is conducted semi-annually (USAG, 2004b). Medical waste is regulated by Federal, state, and local regulations to protect transporters and the public from potential hazards that are associated with possible infectious agents in the waste. Medical waste at Fort Detrick is incinerated in accordance with CDC/NIH guidelines (USAG, 2004b).

Employees of facilities that generate or handle medical waste must be trained in the safe handling of infectious agents, associated equipment, and proper disposal procedures for medical waste. Standard operating procedures (SOPs) have been established to support and comply with the *Exposure Control Plan for the Occupational Exposure to Bloodborne Pathogens* (29 CFR 1910.1030). These policies and procedures are applicable to all Directorate of Installation Services (DIS) personnel of the Refuse Collection and Disposal Section who come into contact with blood or other potentially infectious medical wastes. All DIS personnel receive initial and annual training, which includes instructions for use of personal protective equipment (PPE). All DIS refuse personnel are offered the hepatitis B vaccine within 10 working days of their initial work assignment (USAG, 2004b).

4.14.3 Hazardous Waste

Hazardous wastes, as defined in COMAR 26.13.02.03, includes a wide variety of substances and toxics, generated or used in a multitude of processes. The types and quantities of hazardous waste generated at Fort Detrick are also diverse. The biomedical research laboratories and the maintenance department are the major sources of hazardous waste at the Installation. Laboratory research activities typically generate small quantities of many different types of hazardous waste, while other activities with more predictable waste streams usually generate larger quantities of fewer types of hazardous waste. In FY 2005, the Installation generated approximately 16,700 pounds of hazardous waste (not including NCI-Frederick, which disposes of these wastes through contractors and not through USAG) (McNitt-Stewart, 2006).

AR 200-1 directs DA facilities to design and operate temporary storage areas and transfer facilities to prevent any releases to the environment. DA facilities are also required to maintain an inventory of hazardous waste that is generated, treated, stored, disposed of, or transported off-site. Hazardous waste must be collected at designated Satellite Accumulation Points (SAPs) on the Installation. Disposal of hazardous waste must be performed in accordance with applicable Federal, state, local, and DA regulations.

The Installation implements its own Hazardous Waste Management Program (HWMP). However, tenants must maintain their own procedures for managing and handling hazardous

waste, and characterize their waste to determine the appropriate method of disposal. All waste that is identified as hazardous, must be properly labeled, packaged, stored, collected, and transported per RCRA, U.S. Department of Transportation (USDOT) regulations and the Fort Detrick HWMP. Tenants must also assign a point of contact (POC) to be responsible for the turn-in of these items to the Installation's Hazardous Material Management Office (HMMO). Tenants are responsible for the expenses associated with the disposal of hazardous waste generated by their activities.

4.15 PUBLIC OPINION

Public involvement and opinions regarding the Proposed Action are anticipated and encouraged to the maximum extent of NEPA requirements. In addition to Fort Detrick personnel and public officials, comments from the public are being solicited.

4.16 SECURITY

Fort Detrick is a limited access installation. Registered vehicles with decals have the option of entering the installation from any one of the four gates described in Section 4.13. Visitors and non-decaled vehicles must be searched and cleared at the Main Gate. Commercial trucks currently enter via the Old Farm Gate, but will be rerouted to the Main Gate when Old Farm Gate closes for renovations.

4.17 AREA A REMEDIAL INVESTIGATION

Previous NEPA documents have described locations known as "areas of concern" on Fort Detrick. The documents have relied on the Installation-wide Remedial Investigation (RI), historical records, geophysical investigations as well as Federal databases to document areas with potential human hazards. Of these areas, only a portion of Areas A Skeet Range is located within the subject property boundary.

Area A Skeet Range

The Area A Skeet Range was originally an informal shooting range from 1950 through the 1980s at Building 1520. Approximately 1 acre of the subject property's southern corner lies within the estimated 1,000 ft radius of potential lead contamination. In 2003 Fort Detrick personnel conducted a preliminary soil sample study to determine if further investigation was needed to comply with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Samples were taken from undisturbed soil in a transect 350 to 450 ft west of the firing line. The transect distance was based off of estimations of maximum lead concentrations from a previous study at the Area B skeet range. The sampling results revealed lead concentrations marginally above background levels, but well below MDE residential and industrial risk-based concentrations (RBC) (Gortva, 2005a, 2005b; USAG, 2004a). Therefore, no site assessment or remediation investigation is necessary and the area was assigned a DA PAM 200-1-defined Environmental Condition of Property (ECP) Classification 3: areas where release, disposal and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action.

The other areas of interest and their approximate distances from the subject property are listed in Table 4-2 below.

Table 4-2. Areas of Concern and their Location with Respect to the Subject Property

Area of concern	Distance and Direction from the subject property
Former South-Central Area A disposal site	300 feet to the West
Former Stimulant SM testing area	250 feet to the West
North, South and West water tower sites	2,500 feet to the West; 3,100 and 3,000 to the Southwest, respectively
Cleanfill and Combustible Burn Pit sites	1,000 feet to the South
Laboratory Sewer System (LSS)	1,300 feet to the Southwest
Gasoline storage tank leaks near Building 950	3,000 feet to the Southwest
TCE spill site	3,000 feet to the Southwest
Possible Historical Western Area A landfill	4,000 feet to the Southwest
Possible medical waste landfill near Building 535	4,000 feet to the Southwest
Building 190 No. 6 fuel spill	4,250 feet to the Southwest

5.0 ENVIRONMENTAL IMPACTS

This section describes the impacts on the natural and human environments that may result from implementation of the Proposed Action or the No Action Alternative.

- Sections 5.1 through 5.17 describe the impacts that the Proposed Action may have on the environmental baseline conditions discussed in Sections 4.1 through 4.16.
- Section 5.18 describes the potential cumulative impacts that the Proposed Action would have when combined with other recent, ongoing, or planned activities in the project area.
- Section 5.19 compares the impacts of the Proposed Action with those of the No Action Alternative to support the decision-making process by USAG and VAMC.

The analysis presented in this section considers direct, indirect, and cumulative impacts on the environment and potentially affected populations, including CBOC staff and visitors, construction workers, and the surrounding public. The impacts described in this section may not necessarily occur, but they are considered reasonable possibilities. The extent of information provided for each environmental resource is commensurate with the detail necessary to describe the impacts as related to the “importance of the impact.” Impacts are categorized from most adverse to beneficial as follows:

- *Significant-and-unmitigable* – A potential impact of this severity would preclude a Finding of No Significant Impact (FONSI) and would warrant the preparation of an Environmental Impact Statement (EIS);
- *Significant-if-not-mitigated* – A potential impact of this severity would require specific mitigation measures to support the issuance of a FONSI. Such measures would be more stringent than those dictated by regulatory and permitting requirements and would be identified specifically in the impacts analysis.
- *Minimal-to-moderate* – A potential impact of this severity (“less than significant”) would not require specific mitigation measures, other than those dictated by regulatory and permitting requirements, and would not preclude the issuance of a FONSI.
- *None-to-negligible* – A potential impact of this severity would be barely detectible and would readily support the issuance of a FONSI.
- *Beneficial* – A beneficial impact would represent an improvement in conditions above the environmental baseline and would support the decision-making process to proceed with a Proposed Action or alternative.

5.1 LAND USE

The Proposed Action was not anticipated during the development of the Installation Master Plan (USAG, 2003a). Instead, the subject property was included under the “Research, Development Testing and Evaluation” (RDTE) land use designation and was evaluated as part of the NIBC EBS (USAG, 2004a). For the implementation of the Proposed Action, Fort Detrick would change the classification of the property to “Medical/Dental”, in order to be consistent with the adjacent Barquist facility, which is designated as a “Medical/Dental” use. Also, the Proposed Action is consistent with the mission of Fort Detrick and would enhance the real property value of the Installation. Therefore, the Proposed Action would not conflict with the Installation Master Plan objectives for the property and would have a net *beneficial* impact on Installation land use.

The land use of the property would change from a vacant field to a building with a parking lot. Therefore, potential adverse impacts from the change in land use would be addressed under other environmental resources. As was discussed in Section 2.3.5 (Forestation Requirements), development of the project site would follow Maryland Forestation requirements and Fort Detrick’s FCP, by generating approximately 0.5 acres of replanted forest in Area B. Potential impacts on the biological resources will be discussed in Section 5.6. Conversion of pervious land to an impervious surface area would increase storm water runoff and could have impacts on SWM and the rates of erosion. Further details on the impacts to soils and water resources are addressed in Sections 5.4 (Soils), 5.5.1 (Surface Water), and 5.13.4 (Storm Water).

5.2 CLIMATE

The implementation of the Proposed Action would have a *none-to-negligible* impact on the regional climate. Potential impacts to air quality are discussed in Section 5.7.

5.3 GEOLOGY

Although the Fort Detrick area is susceptible to sinkhole formation, the possibility of a sinkhole forming on the subject property is negligible and would be addressed in a geotechnical evaluation during building design. The impacts to geology would be *none-to-negligible*.

5.4 SOILS

The implementation of the Proposed Action would have *minimal-to-moderate* impacts on soil resources. Erosion and topsoil loss from construction of the CBOC would be minimized through implementation of Best Management Practices (BMPs) during construction pursuant to Fort Detrick regulation 420-70 and Maryland Standards. Section 2.3.4 (Sedimentation, Erosion, and Storm Water Management Requirements) discusses BMPs used to control erosion from fugitive dust emissions and increased storm water during construction.

5.5 WATER RESOURCES

5.5.1 Surface Water

During construction of the proposed CBOC, erosion of exposed earth could result in significant sedimentation in receiving surface waters due to excessive storm water and/or inadequate ESC measures. The receiving waters in question include Detrick Branch of the Monocacy River as

discussed in Section 4.5.1 (Surface Water). Adherence to BMPs discussed in Section 2.3.4 (Sedimentation, Erosion, and Storm Water Management Requirements) during the construction phase in accordance with MDE standards would mitigate this impact. Thus, impacts to surface waters would be *minimal-to-moderate* as a result of the Proposed Action during construction.

The Proposed Action consists of a new building, an asphalt lot, and associated concrete walkways. Storm water runoff from the proposed site currently flows in a southerly direction over a grassy field. The conversion of pervious to impervious land would lead to higher rates of runoff and an increase in the local volume of surface runoff. The potential impacts to surface waters from the resulting increased runoff include local flooding, diminished groundwater recharge, and water quality degradation due to sedimentation and accumulated pollutants on impervious surfaces. Potential adverse impacts would be mitigated as part of the Proposed Action by the use of BMPs and storm water management (SWM) design per MDE requirements. As a result, adverse impacts of the Proposed Action on surface waters during the operational phase of the CBOC would be *minimal-to-moderate*. Impacts to storm water resources are also discussed in Section 5.13.4 (Storm Water).

5.5.2 Groundwater

Groundwater protection is mandated by the Resource Conservation and Recovery Act (RCRA) (40 CFR Parts 261-270), CERCLA (40 CFR Parts 300-399), and the Safe Drinking Water Act (SDWA) (40 CFR Part 144). The SDWA requires state agencies to identify and protect critical aquifer areas. Potential adverse impacts to groundwater may occur during the construction phase of the Proposed Action if the aquifer is penetrated when laying the foundation. However, because groundwater at the project site is well below the deepest penetration associated with the construction of the proposed CBOC and its associated subsurface utility corridors (USAG, 2005b), it is expected that the impacts on groundwater resources would be *none-to-negligible*.

5.5.3 Floodplains

The project site is not located in, or adjacent to, any identified floodplains as discussed in Section 4.5.3. The closest 100-year floodplain to the project site is located over 2,000 ft northeast at Two Mile Run. Therefore, impacts to floodplains would be *none-to-negligible*.

5.5.4 Wetlands

The project site is not located in, or adjacent to, any wetlands as discussed in Section 4.5.4. The closest wetland is located approximately 2,000 ft to the northeast. Therefore, impacts on wetlands would be *none-to-negligible*.

5.6 BIOLOGICAL RESOURCES

The Proposed Action would result in *minimal-to-moderate* adverse impacts on the current biological resources due to habitat destruction, fugitive dust, erosion, and noise. The Proposed Action would convert an existing grassy field into primarily an impermeable surface. Two mature trees may be removed if they cannot be conserved in the site design. Conversion of the land would prevent common wildlife, such as deer, groundhogs and birds from inhabiting or roaming the area; however, no endangered or sensitive species have been documented on the subject property.

Adherence to BMPs relevant to fugitive dust, erosion control, tree and vegetation protection, and noise control (see Section 2.3 Regulatory and Permitting Requirements for Construction), as part of the Proposed Action, would mitigate adverse impacts during the construction phase. Reforestation procedures in adherence to state regulations as outlined in Section 2.3.5 (Forestation Requirements) and landscaping plans under the Proposed Action would provide additional wildlife habitat, offsetting most of the adverse impacts of developing the subject property.

5.7 AIR QUALITY

Because Fort Detrick is located in a *moderate* nonattainment area for ozone, the pollutants of concern are NO_x and VOCs. As was discussed in Section 2.3.6, a conformity review was performed (based on an area of 16,500 ft²) in accordance with the Clean Air Act (CAA) to demonstrate that the Proposed Action would not exceed the established emission thresholds for these pollutants during the construction and operational phases. The results of this review are documented in the Record of Non-Applicability (RONA), which is Appendix A of this EA.

Results of the review show that a full conformity analysis is not required at this time because: 1) total direct and indirect emissions of NO_x and VOC from the Proposed Action would be well below the conformity threshold value established in 40 CFR 93.153(b) at 100 tons per year for each pollutant; and 2) direct and indirect NO_x and VOC emissions from this project do not amount to 10 percent or more of the nonattainment area's emissions. If and when, the second phase of the full build out of the CBOC is anticipated (i.e., future expansion of an additional 19,000 ft²), Fort Detrick's Environmental Office would take the appropriate measures to comply with the General Conformity Rule before construction takes place.

During construction fugitive dust emissions are the primary cause for air quality degradation; however, adverse impacts from land disturbance activities would be temporary and *minimal-to-moderate* in severity. Adverse air quality impacts would be minimized through the use of BMPs as addressed in Section 2.3.4.

Additional construction-related activities that would impact air quality are construction worker traffic, usage of heavy construction vehicles/equipment, usage of paints for building interior and parking lot, and usage of diesel generators as a power source. Emissions during construction would be *minimal-to-moderate* as the incremental increase of total emissions would be relatively minor compared to the total emissions in the Washington, DC-MD-VA region, and furthermore, would be temporary.

During the operational phase of the Proposed Action, activities that would impact air quality include increased employee and visitor vehicles, potential use of a diesel-powered emergency generator during brief power outages, potential new boilers, and additional usage of the Installation's municipal and medical waste incinerators. The proposed CBOC would obtain heat/hot water from either new boilers or from the Cogeneration Utility Plant (CUP). For the purposes of determining the environmental impacts, it is assumed that the CBOC would install and operate two new gas-fired boilers.

Results of the conformity review indicate that the major source of NO_x and VOC emissions would be from visitor vehicles. In order to capture a worst-case scenario, the conformity review assumed that the average miles traveled per visitor would be 20 miles. However, it is estimated that the majority of patients would be a combination of on-base personnel and surrounding veterans. Relative to the VAMC in Martinsburg, the Proposed Action would result in considerably shorter average travel distances and would thereby generate less vehicle emissions. As a result, the adverse air quality impacts due to increased patient visits would be offset in the region. Because air quality impacts from traffic emissions are typically assessed on a regional scale, it is estimated that air quality impacts would be *minimal-to-moderate* during the operational phase of the Proposed Action.

5.8 CULTURAL RESOURCES

The National Historic Preservation Act of 1966 mandates a national policy for protection and restoration of significant historic, architectural, archaeological or cultural resources. In 1980 amendments were added to include historic preservation costs in the planning and budgeting of developing projects. USAG in conjunction with MDE has updated the Cultural Resources Management Plan for the Installation (USAG, 2005a). There are no documented cultural resources on the subject property; therefore, impacts on the Installation's cultural resources would be *none-to-negligible* as a result of the Proposed Action.

5.9 SOCIOECONOMIC CONDITIONS

The implementation of the Proposed Action would provide several *beneficial* impacts for Fort Detrick and the surrounding area. The Proposed Action would provide construction-related work for local vendors and contractors and provide additional jobs for the area. In order to ensure that minority and low-income workers are not excluded from this benefit, all contractors would be required to follow the Equal Opportunity Employment and Affirmative Action considerations (29 CFR 1608.1).

The primary mission of the VA CBOC is to provide medical services to veterans and their dependants within the Baltimore-Washington metropolitan area. Operation of the facility would reduce patient travel distance and increase the VISN 5 clinic space and opportunity. Installation personnel would benefit from increased medical services and shared resources. Also, the operation of the CBOC would not adversely affect property values of residential areas adjacent to the Installation. Therefore, the Proposed Action would have a net *beneficial* impact on local and regional socioeconomic conditions.

5.10 NOISE

Transitory increases in noise levels would occur in the immediate vicinity of the Proposed Action site during the construction phase and could impact the health of the construction workers. However, adherence to appropriate OSHA standards would protect the workforce from excessive noise (29 CFR 1926.52). Noise impacts during construction of the Proposed Action would be short-term in duration and limited to daytime hours. See Section 4.10 (Noise) for a discussion of construction noise limitations. Since construction-related noise impacts are temporary in nature and would not expose people residing or working in the area to severe noise levels, adverse impacts would be *minimal-to-moderate* in severity during the construction phase.

Implementation of the Proposed Action would increase traffic noise above levels that currently exist at the Barquist facility. Also, an occasional siren from an emergency vehicle would temporarily increase the noise level. Because the increased traffic would result from increased patient visits, the noise level increases would be transitory and distributed throughout the day. Therefore, increased noise levels on a permanent basis resulting from proposed CBOC operations would be *minimal-to-moderate* in severity.

5.11 ODORS

Minor odors, such as those generated by fueling construction machinery, may occur during the construction phase of the Proposed Action. Such odors would be temporary, and impacts to the environment would be *minimal-to-moderate*. It is not anticipated that the implementation of the Proposed Action would result in odors unique from the rest of activities on Fort Detrick. Therefore, impacts to the environment from odors during the operation of the Proposed Action would be *none-to-negligible*.

5.12 TRANSPORTATION AND TRAFFIC

During the construction phase of the Proposed Action, the contractor personnel, inspectors, and supply deliveries would temporarily increase vehicular traffic at the Installation. Generally, construction vehicles enter the Installation at Old Farm Gate. This entrance is scheduled to close for renovation, which may coincide with the construction schedule for the Proposed Action, at which time the Main Gate would be temporarily available for trucks and construction vehicles access.

Since the proposed CBOC is a fairly small facility, the number of construction-related vehicles required would be relatively insignificant. Furthermore, construction workers may park in Area B and be bused to and from the CBOC site to mitigate potential impacts to parking and traffic. It is anticipated that construction would take place between 6:00 am and 3:00 pm, Monday through Thursday, and therefore, the start-end hours would not coincide with the peak traffic hours experienced at the Installation (Livengood, 2005). As a result, temporary impacts to transportation resources are expected to be *minimal-to-moderate* during construction.

During the operational phase of the proposed CBOC, commuting employees and patient visitors would permanently increase traffic, particularly between the Main Gate and the proposed CBOC via Porter Street. By the time the proposed CBOC is fully utilized (i.e., future expansion has been completed), it is anticipated that an average of 30 new employees could staff the CBOC at any given time (Livengood, 2005). This includes full-time physicians/health practitioners and support staff (administrative and maintenance), as well as other health specialists that would be hired as part-time employees. Furthermore, the projected number of patient visits is expected to peak during the year 2012 at 36,500 visits (see Table 1-1). Based on 250 working days in a year, this maximum number of projected visits translates into 146 patient visits and 30 employee commutes per day. It is assumed that one patient visit or employee commute would generate two vehicle trips, one trip for entering and another for exiting. Therefore, the total number of vehicle trips per day (vpd) as a result of the CBOC operations would be approximately 352 vpd.

This increased traffic volume would add to the existing congestion of Porter Street, a primary access road to the site, and to the Main Gate. However, this volume would represent only a

minor increase (approximately 2.8 percent) over the predicted volume of 12,640 vpd on the Installation (USAG, 2003a 2003b, 2004b). The predicted volume includes increases that are expected from the NIH IRF and DHS NBACC projects. The employee-generated traffic would be concentrated during the morning and evening commuting times when traffic is heaviest, while the patient visits would be spread out during the eight-hour work day (approximately 36 vehicle trips per hour from patient visits).

The increase in traffic from the Proposed Action would most impact the Main Gate as this is the central access point of the Installation and is located near the project site. Table 5.1 lists the estimated number of vehicle trips that the proposed CBOC operations would generate at the Main Gate during peak AM and PM hours. 'IN' is defined as a vehicle trip generated upon entering and 'OUT' as a vehicle trip generated upon exiting. In typical traffic analyses, the peak hour represents the most critical hour period for operations and has the highest capacity requirements for an intersection. Although the peak hour is not a constant value from day to day or from season to season, it normally occurs on a weekday during commuting hours. During the traffic count for the 2003 Installation-wide traffic study discussed in Section 4.12, the AM and PM peak hours at the Main Gate were 7:30 am to 8:30 am and 4:30 pm to 5:30 pm, respectively (STV, Inc., 2003). The number of vehicle trips was derived using vehicle trip generation rates published by the Institute of Transportation Engineers (ITE). ITE trip rates are based on hundreds of trip generation surveys nationwide for a range of land use types. The ITE trip rate chosen for these estimates was based on an average of 30 employees and a medical facility land use. The number of vehicles in and out of the Main Gate was based on the 2003 traffic study and reflects expected traffic growth for City of Frederick, potential future development affecting intersections surrounding the Installation, and Installation development projects mentioned in the Master Plan EA, including the NIH IRF and DHS NBACC projects (STV, Inc., 2003).

Table 5-1 shows that the increase in vehicle trips as a result of the new CBOC would be relatively small compared to the total number of vehicles passing through the Main Gate. In particular, the relative percent increase for the most relevant directional trips (i.e., AM-IN and PM-OUT) would be expected to be 2 percent for both of these directions. Given the recent completion of the Main Gate and apparent improvements in traffic flow conditions for this access point, the incremental increase in traffic that would be associated with the Proposed Action is not expected to degrade the LOS when compared to conditions identified in the 2003 transportation study. Furthermore, patient visits would normally be distributed throughout the day and are not expected to generate a significant number of visits that would coincide with the peak hours at the Main Gate, thus further reducing potential traffic impacts at the Main Gate.

**Table 5-1. Number of 'IN' and 'OUT' Trips Generated by Vehicles
During AM and PM Peak Hours**

	<u>Number of Trips (IN / OUT)</u>	
	AM Peak Hour ¹	PM Peak Hour ¹
Main Gate (i.e., number of trips based on 2003 traffic study ²)	930 / 366	395 / 1,114
Proposed CBOC (i.e., resulting new number of trips)	20 / 10	13 / 20
Percent Increase at Main Gate due to CBOC operations	2% / 3%	3% / 2%

¹AM and PM peak hours occur approximately at 7:30 am -8:30 am and 4:30 pm – 5:30 pm, respectively

²2003 traffic study based on traffic analysis which reflect anticipated traffic increases from development projects in the City of Frederick and Fort Detrick that would impact the intersections in and surrounding the Installation

When comparing the total number of vehicle trips generated by the proposed CBOC (listed in Table 5-1) and the projected traffic loads at off-post intersections surrounding the Installation (projected in the 2003 traffic study), it is estimated that only a 1 to 2 percent increase in traffic load would occur during the AM and PM peak hours as a result of the CBOC operations. The actual percent increase would most likely be even less than this estimate considering that not all of the vehicle trips from the CBOC project would be occurring at the same intersection and the majority of patient-generated traffic would not coincide with the busiest traffic hours. Therefore, the incremental traffic increases at the surrounding intersections would be very minor as a result of the CBOC operations.

Since the 2003 traffic study was completed, there have been new research and development activities that have led to a greater need in infrastructure improvements at the Installation. The Installation Master Plan EA anticipates that the overall potential impacts of the Proposed Action (i.e., Implementation of the Master Land Use Plan for Fort Detrick, Maryland) on transportation would be positive during the operational phase. Six of the proposed projects identified in the Master Plan EA are expected to mitigate future traffic congestion on the Installation and in areas adjacent to Fort Detrick, including the upgrading of entrance gates and the addition of new roads at the Installation (USAG, 2004b).

As part of an ongoing commitment to improving traffic operations on and off the Installation, USAG is currently undertaking another Installation-wide traffic study to comprehensively evaluate the most efficient use of available resources in addressing future transportation needs. In light of the anticipated traffic improvements, it is expected that the Proposed Action would result in *minimal-to-moderate* impacts to transportation resources on and off the Installation during its operational phase. Air quality impacts as a result of increased vehicular traffic is discussed in Section 5.7.

5.13 UTILITIES

Utility consumption data for the Installation and Barquist Army Health Care Facility during FY 2005 were provided by the Installation's Directorate of Installation Services (DIS) and likewise data for the proposed CBOC was projected based on Barquist's data (Table 5-2). Activities in the proposed CBOC facility are anticipated to be similar to those of the Barquist facility (25,000 ft²).

Therefore, the projected utility usage rates for the proposed CBOC were based on a proportional area (square footage) comparison, which assumes the future expansion of the CBOC for a total area of 35,500 ft².

Table 5-2. Annual Utility Requirements for Fort Detrick and the Proposed CBOC

Service	Installation Rates (FY2005) ¹	Projected Annual Rates of CBOC Facility ²	Installation Increase as a Result of the CBOC
Electricity (kWh)	148,323,572	450,000	0.3%
Gas (ccf) ³	1,606,640	30,000	1.9%
Water (gal)	447,864,000	560,000	0.1%
Sanitary Wastewater (gal)	258,562,000	220,000	0.1%

¹ Source: McNitt-Stewart, 2006 (except for natural gas); Majority of natural gas consumed by Fort Detrick is used to operate the boilers.

² Projected from metrics based on existing Barquist Army Health Care Facility (25,000 ft²). Barquist data source (except for natural gas): McNitt-Stewart, 2006

³ Source: Stiles, 2006

5.13.1 Energy Resources

Adverse impacts from the construction and operation of the Proposed Action could occur if excessive fuel or energy is consumed. During construction, the impact of diesel fuel demands for power equipment and movement of materials, and gasoline for workforce commuting, would be *none-to-negligible* due to the relatively minor size of the project, and furthermore, would be temporary.

As a single building that operates during normal business hours, the energy demands of the proposed CBOC would represent a negligible increase in the consumption by the Installation (see Table 5-2) and would be within the estimated future demands in the Master Plan. If an emergency generator is required for the proposed CBOC, the unit would most likely be a diesel-powered generator (at approximately 65 kW).

At this time there are no established design details about potential heating equipment at the proposed CBOC; however, for the purposes of determining the environmental impacts, it is assumed that the CBOC would install and operate two new gas-fired boilers, similar to those used at the existing Barquist facility. Operation of the CBOC facility is projected to use 450,000 kWh of electricity and 30,000 ccf of natural gas per year, which is 0.3 and 1.9 percent of the Installation's total during FY 2005, respectively. Therefore, the impacts on energy resources from the operation of the proposed CBOC would be *none-to-negligible*.

5.13.2 Water Supply

The Fort Detrick WTP's capacity is 730 million gallons per year and in FY 2005 approximately 450 million gallons of water was produced (McNitt-Stewart, 2006). Due to the relatively small size of the CBOC facility, it is estimated that the water consumed by the facility would represent a very small increment relative to the amount of water consumed by the Installation and would be well within the WTP's production capacity. Operation of the CBOC facility is projected to consume 560,000 gallons of water per year, which is 0.1 percent of the Installation's total during FY 2005. Therefore, the impact on drinking water resources from the operation of the proposed CBOC would be *none-to-negligible*.

5.13.3 Sanitary Wastewater

As was mentioned in Section 2.4, Fort Detrick Regulation 200-7 contains requirements for discharging non-domestic wastewater to the Installation sanitary sewer system. As a first-time user, the proposed CBOC would be required to submit a New User Discharge Authorization to the USAG SEIPO at least 180 days prior to any scheduled discharges.

Due to the relatively small size of the CBOC facility, it is estimated that the amount of wastewater generated during the operation of the proposed CBOC would produce insignificant quantities relative to the approximately 259 million gallon annual discharge to the WWTP during FY 2005 (McNitt-Stewart, 2006). Operation of the CBOC facility is projected to produce 220,000 gallons of sanitary wastewater per year, which is 0.1 percent of the Installation's total during FY 2005. No radioactive wastes are expected to be discharged into the wastewater system. Therefore, the impacts on wastewater treatment and discharge from the operation of the proposed CBOC would be *none-to-negligible*.

5.13.4 Storm Water

Potential impacts to surface water during the construction of the Proposed Action were discussed in Section 5.5.1 (Surface Water). Typical ESCs to mitigate potential impacts to surface water during construction include employing soil stabilization measures and implementing structural practices. The Proposed Action could potentially disturb 107,500 ft² (2.47 acres – facility footprint with future expansion and parking lot) of land, therefore the aforementioned documents would be required for this project. Adherence to ESC and SWM BMPs, as required by MDE, would result in *minimal-to-moderate* storm water impacts during construction.

The Proposed Action includes the construction of a 35,500-ft² building (includes future expansion), 72,000-ft² of an asphalt lot and associated concrete sidewalks. Based on these measurements, the net increase of impervious area would total 107,500-ft² (2.47 acres). The proposed SWM facilities must be designed consistent with the *2000 Maryland Stormwater Design Manual Volumes I and II* and be constructed in accordance with a project plan approved by MDE (MDE, 2000). In order to remove pollutants that are associated with new development, such as total suspended solids (TSS) and total phosphorous (TP), MDE requires that structural SWM BMPs must be sized and designed to treat the 'water quality volume' (WQv). The WQv is a function of the net impervious area increase. For the Proposed Action, it is estimated that the WQv would be approximately 0.20 acre-feet (based on 2.47 acres impervious area). Therefore, the Proposed Action would include appropriate SWM facilities to accommodate the changes from pre-construction to post-construction conditions. In addition to the NPDES documentation, ESC and SWM plans would be required to implement the Proposed Action, as it exceeds the 5,000 ft² and 1 acre limitations.

In light of the many development plans at the Installation, an overall Installation-wide SWM plan is currently being considered. The Installation has developed an MDE-approved conceptual regional stormwater management approach for drainage areas A-3 and A-4 as detailed in the Institutional Management Plan (IMP) for SWM (USAG, 2005c). The purpose of the IMP is to streamline the MDE permitting process for development projects at the Installation and to provide a more comprehensive and efficient method of managing storm water. The IMP

evaluates several SWM options that were developed based on future land use changes. The Proposed Action was identified in the IMP as a new construction project and was recorded as having 0.4 acres of impervious area that would be required for treatment under MDE regulations. This IMP has been submitted to MDE for review and it is uncertain at this time how the outcome of the IMP would impact the SWM design for this project.

As part of the Proposed Action, the VA would provide post-development SWM as determined by the Fort Detrick IMP. Since the selected SWM method would comply with all MDE water quality and quantity requirements, potential impacts related to storm water discharges would be *minimal-to-moderate*.

5.14 WASTE MANAGEMENT

Waste generation data for the Installation and Barquist Army Health Care Facility during FY 2005 were provided by the DIS and likewise data for the proposed CBOC was projected based on Barquist's data (Table 5-3). Activities in the proposed CBOC facility are anticipated to be similar to those of the Barquist facility. Therefore, the projected waste generation rates for the proposed CBOC were based on a proportional area (square footage) comparison (CBOC projections include the 19,000 ft² future expansion for upper bound estimates).

Table 5-3. Annual Amounts of Wastes Generated by Fort Detrick and the Proposed CBOC

Service	Installation Rates (FY2005) ¹	Projected Annual Rates of CBOC Facility ²	Installation Increase as a Result of the CBOC
Municipal Solid Waste (lb)	4,826,596	43,000	0.9%
Medical Waste (lb)	1,527,128	1,100	0.1%
Hazardous Waste (lb)	16,716 ³	< 100 ⁴	< 0.6%

¹ Source: McNitt-Stewart, 2006 (except for hazardous waste data)

² Projected from metrics based on existing Barquist Army Health Care Facility (25,000 ft²). Barquist data source (except for hazardous waste): McNitt-Stewart, 2006.

³ Source: Leadore, 2006

⁴ Source: Mitchell, 2006

5.14.1 Municipal Solid Waste

During construction, the contractor would have responsibility for adhering to regulatory requirements for the disposal of solid waste and construction debris and the management of such wastes would be in accordance with Federal, state, and local regulatory requirements, as noted in Section 2.3.2. Due to the relative small size of the CBOC facility and the fact that there would not be any demolition activities, it is estimated that the amount of municipal solid wastes generated during construction would be minor. Therefore, construction of the proposed CBOC would be *none-to-negligible*.

It is estimated that the amount of municipal solid wastes generated during the operation of the proposed CBOC would produce 43,000 lbs per year, approximately 0.9 percent of the Installation's total during FY 2005. The projected annual solid waste quantity would represent a negligible increment, well within the Installation's solid waste management system capacity, as

discussed in Section 4.14.1. Therefore, the impacts on solid waste management would be *none-to-negligible*.

5.14.2 Medical Waste

It is estimated that the amount of medical wastes generated during the operation of the proposed CBOC would produce 1,100 lbs per year, approximately 0.1 percent of the Installation's total during FY 2005. The projected annual medical waste quantity would represent a negligible increment, well within the Installation's medical waste management system capacity, as discussed in Section 4.14.2. Therefore, the impacts on solid waste management would be *none-to-negligible*.

5.14.3 Hazardous Waste

During FY 2005, the Barquist facility generated very minimal amounts of hazardous waste (Mitchell, 2006). The majority of Barquist's hazardous wastes during FY 2005 were: expired pharmaceuticals, which are the responsibility of the pharmacy to return to distributors; minimal amounts of universal wastes, which are collected and recycled by USAG; and minimal amounts of silver from the dental facility, which are collected and recycled by USAG's silver recovery program (Leadore, 2006). It is assumed that the proposed CBOC would generate similar types of waste, which would amount to less than 100 lbs per year of hazardous waste, less than 0.6 percent of the Installation's total during FY 2005. Therefore, the impacts to hazardous waste management would be *none-to-negligible*.

5.15 PUBLIC OPINION

NEPA and AR 200-2 regulations require that public opinion towards the Proposed Action be considered to the maximum extent practicable. The public is encouraged and expected to comment on the Proposed Action. Evaluation of public opinion will include consideration of local and national issues.

As appropriate, USAG Public Affairs Office will coordinate and conduct orientation programs; meetings with Neighborhood Action committees; briefings with other interested community groups; and meetings with key stakeholders such as the City of Frederick, Frederick County, Frederick Community College, and the Chamber of Commerce. The Proposed Action is expected to garner favorable reaction from the public based on the increased availability of services for regional veterans and active military personnel.

5.16 HUMAN HEALTH AND SAFETY

Minor impacts may occur during the construction and operation of the Proposed Action. By following OSHA procedures, injuries during construction would be minimized. Adherence to MDE air quality standards would minimize adverse air impacts during construction.

The Allegheny Power (AP) 230- kV power line corridor bounds the northeastern boundary of the subject property. High intensity electromagnetic fields (EMF) generated by the power lines can potentially cause human health hazards. EMF exposure is known to affect objects with magnetic and electrical components, such as cathode ray devices, computers, magnetic storage media, credit cards, analog watches and electronic implants (i.e. cardiac pacemakers) (CERN, 1993).

Human health impacts from EMF exposure have been studied since the 1960s; however, the results to date are inconclusive. A comprehensive study was performed in 1999 by the National Institute of Environmental Health Sciences (NIEHS), which failed to reconcile conflicting epidemiological results with laboratory experiments. NIEHS found a very small risk of childhood leukemia in populations exposed to EMF as well as chronic lymphocytic leukemia in occupationally exposed adults, but the study could not establish a causal relationship between the environmental EMF exposure and disease occurrence in lab animals. Therefore, NIEHS designated EMF exposure as a possible human carcinogen, the least hazardous designation among the EPA 1986 cancer-causing classifications (NIEHS, 1999).

The CBOC is a multipurpose medical facility and is anticipated to service patients with a variety of medical conditions. Therefore, it is likely that veterans with electronic implants will utilize the facility. The European Organization for Nuclear Research (CERN) recommends that individuals with cardiac pacemakers minimize their exposure to EMF fields, because field strength of 5 milliGauss (mG) or more can affect pacemaker functions (CERN, 1993).

In the *EA for the Construction of an Electrical Substation*, USAG calculated the magnetic field strength for the 230-kv AP power line corridor during maximum summer loading conditions. Field strength is at its maximum directly below the power lines with approximately 10 mG. The strength decays to 1 mG within 200 to 250 feet from the source, which is within background household levels. Household fields have background strengths of 1 mG, with some appliances emitting local highs of 20 to 90 mG within a one-foot distance (USAG, 2002). Any adverse human health impacts from the construction and operation of the Proposed Action would be *minimal-to-moderate* provided that the CBOC adheres to Federal and state regulations.

5.17 ENVIRONMENTAL JUSTICE

The Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations* requires agencies to determine whether their proposed actions will result in disproportionate adverse impacts on minority or low-income populations. To prevent low-income and minority communities from being excluded from construction jobs, all contractors must follow the Equal Opportunity Employment and Affirmative Action considerations (29 CFR 1608.1). Once operational, the Proposed Action would provide *beneficial* impacts to low-income veterans in the vicinity of Fort Detrick by minimizing the distance to a medical facility. Because the Proposed Action would not otherwise have significant adverse impacts that would affect residential areas adjacent to Fort Detrick as described elsewhere in this section, the implementation of a CBOC facility would not have a disproportionate adverse impact on minority and low-income populations in the vicinity.

5.18 CUMULATIVE IMPACTS

Cumulative impacts, as defined by the CEQ, are "Impacts on the environment, which result from the incremental impact of the action when added to other past, present and reasonable foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such action" (40 CFR 1508.7). Thus, cumulative impacts are the sum of all direct and indirect impacts, both adverse and positive, that result from the Proposed Action when combined with past, present, and future actions regardless of the source. Cumulative impacts may be accrued over time and/or in conjunction with other pre-existing effects from other

activities in the area (40 CFR 1508.25). Therefore, pre-existing impacts and multiple smaller impacts should also be considered.

The Proposed Action would not significantly increase the workforce or the residents of Fort Detrick. As described throughout this chapter and summarized in Section 5.19, the majority of adverse environmental impacts, with the exception of impacts from increased traffic, would occur during construction of the Proposed Action. With strict adherence to regulations and requirements for BMPs during construction, these impacts would be temporary and *minimal-to-moderate* in severity.

Several of the projects listed in Section 1.3 (Assessment Methodology), including the NIH IRF, DHS NBACC Facility, and CK CUP, may occur concurrently with construction activities for the Proposed Action. To keep potential adverse impacts on construction workforce safety to a minimum, these projects, including the proposed CBOC, would be required to implement a Safety Incident Prevention Plan (SIPP). Therefore, cumulative impacts on construction workforce safety resulting from the Proposed Action, would be *minimal-to-moderate* in comparison to the other projects due to its relative size. Similarly, potential cumulative impacts on traffic during the construction phase of the Proposed Action would be *minimal-to-moderate* by coordination among construction managers for all four projects to ensure easy and safe access to the sites for delivery vehicles.

During both the construction and operational phases of the Proposed Action, cumulative water resources and soil erosion impacts associated with increased storm water runoff from upstream sources may affect the proposed CBOC site and downstream locations. These potential impacts would be *minimal-to-moderate* through the proper use of required BMPs for ESC and SWM (see Section 2.3.4 Sedimentation, Erosion, and Storm Water Management Requirements).

Although operation of the proposed CBOC facility would add to existing and planned demands for utility and waste management services, the cumulative total consumption of utility resources and generation of wastes as a result of CBOC operations would be well within the existing capacities of these established management systems because of the CBOC's relatively small size. Therefore, cumulative impacts as a result of the Proposed Action would be *none-to-negligible*.

During CBOC operations, cumulative adverse impacts to air quality and noise levels at the Installation and on arterial streets adjoining Area A would be associated with increased traffic over time. As most of the increased traffic would result from patient visits, which is transitory and distributed throughout the day, the Proposed Action is expected to have *minimal-to-moderate* cumulative adverse impacts on baseline noise levels. Traffic-related air quality impacts are typically assessed in terms of total regional vehicle miles of travel-producing tons of pollutants, such as VOCs and NO_x per year. Thus, cumulative adverse air quality impacts are expected to be *minimal-to-moderate* because the Proposed Action would be more accessible and decrease the average travel distance, resulting in an offset of cumulative fugitive emissions in the region altogether.

Improvements to the existing roadways and traffic patterns at Area A of Fort Detrick are underway and others are being planned as discussed in Section 5.12. The infrastructure

improvement projects identified in the Installation Master Plan EA and the ongoing traffic studies would improve traffic circulation at the Installation. At off-post intersections surrounding the Installation, the additional traffic volume generated by the new CBOC employees during the year 2012, the projected peak patient visits year (see Table 1-1), would be minor compared to the traffic volumes estimated to occur at these intersections as a result of development projects on and off the Installation. Furthermore, the increase in vehicle trips as a result of patient visits would be distributed throughout an eight-hour working day and would not coincide with peak traffic hours that occur during commuting hours. Therefore, *minimal-to-moderate* cumulative impacts for operation of the proposed CBOC on traffic are anticipated.

Although the proposed CBOC was not specifically cited in the Installation Master Plan for Fort Detrick, the Proposed Action is consistent with the mission of Fort Detrick and represents an activity comparable to future activities envisioned by the Master Plan. The Master Plan allows for the future establishment of projects and facilities by potential mission partners, such as the CBOC, and therefore addressed cumulative impacts in its NEPA documentation. The Master Plan EA preliminarily assessed that overall operational environmental impacts were deemed to be *beneficial* as a result of implementing the Land Use Plan for Fort Detrick, Maryland, which comprises a number of projects for construction and operation of new facilities and infrastructural improvements within the Installation.

5.19 COMPARISON OF THE PROPOSED ACTION WITH THE NO ACTION ALTERNATIVE

5.19.1 Proposed Action

Tables 5-4 and 5-5 summarize the potential impacts from the construction and operation of the Proposed Action, respectively, assuming the implementation of all BMPs and controls dictated by regulatory and permitting requirements. The analysis did not reveal any *significant-and-unmitigable* or *significant-if-not-mitigated* impacts on the natural or human environment that would occur if the Proposed Action were implemented.

The most severe potential adverse impacts would relate to the increased traffic volumes and associated consequences on other resources (i.e., noise levels and air quality) during CBOC operations, as well as increased storm water runoff and soil erosion and sedimentation during construction. The potential transportation and traffic impacts, and associated noise and air quality impacts, would be *minimal-to-moderate*, assuming the completion of traffic improvements currently underway and planned throughout Fort Detrick. Additionally, though adverse air quality impacts would increase locally, the net amount of vehicle emissions would be offset regionally because of the shorter travel distances for veterans in/near the Fort Detrick area. The potential water resources impacts related to the increased runoff also would be *minimal-to-moderate* assuming the implementation of all BMPs and controls dictated by regulatory and permitting requirements during the construction phase of the Proposed Action. These adverse impacts would not approach the threshold of “*significant-and-unmitigable*” that would preclude the issuance of a Finding of No Significant Impact (FONSI). Furthermore, the potential adverse impacts would be offset by the benefits of building a medical clinic for veterans in an underserved area.

5.19.2 No Action Alternative

Because the No Action Alternative would not implement the CBOC facility on the Fort Detrick property, there would be no adverse impacts on the environment, such as soils, water resources, traffic and others, with the exception of regional air quality, as was discussed in Section 5.0. However, the No Action Alternative would prevent the socioeconomic and land use benefits at Fort Detrick from occurring, namely the increased health care services and enhanced property value for the Installation.

Selection of the No Action Alternative would prevent the VAMC Martinsburg and Fort Detrick's Barquist facility from providing the clinic space and additional health services needed to accommodate the rapid increase in veterans seeking medical care in the region. Both facilities would maintain current operations in *status quo* and, without significant increase in clinic space and upgrades to services, would most likely work under constrained conditions. Medical support would not be as readily available (i.e., limited number of doctors per patient visits). Regional veterans would need to travel longer distances in search of available health care services. Therefore, veterans in the Fort Detrick region would continue to drive longer distances and vehicle emissions would increase faster. As a result, air quality would degrade at higher rates in the region. Finally, under the No Action Alternative the VA and DoD would not participate in the President's Collocation Initiative. There would be no demonstration of the potential benefits of interagency partnerships to maximize health care resources and reduce cost duplication, which could otherwise serve as a positive example and encourage other Federal agencies to take part in similar partnerships nationwide.

Table 5-4. Summary of Potential Environmental Impacts Related to Proposed Action During Construction Phase

Environmental Attribute	Potential Environmental Impacts Related to Construction	Applicable Mitigation Mechanisms
Land Use	<i>Minimal-to-Moderate</i> - tree removal; land grading	Compliance with state and local reforestation requirements*
	<i>Minimal-to-Moderate</i> - construction damage	BMPs and adherence to contract requirements*
Climate	<i>None-to-Negligible</i>	Not required
Geology	<i>None-to-Negligible</i>	Not required
Soils	<i>Minimal-to-Moderate</i> – erosion of exposed earth and high runoff velocities	BMPs and ESC per MDE and Installation standards*
Water Resources	Surface Water: <i>Minimal-to-Moderate</i> – increased runoff volumes/velocities	BMPs, ESC, and SWM per MDE requirements*
	Groundwater: <i>None-to-Negligible</i>	Not required
	Floodplains: <i>None-to-Negligible</i>	Not required
	Wetlands: <i>None-to-Negligible</i>	Not required
Biological Resources	<i>Minimal-to-Moderate</i> – removal of vegetation and land conversion	BMPs and adherence to state and local reforestation requirements*
Air Quality	<i>Minimal-to-Moderate</i> (temporary) - fugitive dust from exposed earth	BMPs for ESC per MDE and Installation standards*
	<i>Minimal-to-Moderate</i> (temporary) – conformity review evaluated emissions (see Appendix A)	Not required
Cultural Resources	<i>None-to-Negligible</i> – no documented cultural, archaeological, or historical resources on site	Not required
Socioeconomic	<i>Beneficial</i> – increase available jobs for region	Not required
	Property values of adjoining residences: <i>None-to-Negligible</i>	Not required
Noise	<i>Minimal-to-Moderate</i> – construction activities; occasional heavy supply trucks	Not required
Odors	<i>Minimal-to-Moderate</i> (temporary)	Not required
Transportation & Traffic	<i>Minimal-to-Moderate</i> – construction vehicles and workforce	Not required
Utilities	Water Supply: <i>None-to-Negligible</i>	Not required
	Sanitary wastewater: <i>None-to-Negligible</i>	Not required
	Storm water: <i>Minimal-to-Moderate</i> – ESC and SWM issues	BMPs, ESC, and SWM per MDE requirements*
	Energy: <i>None-to-Negligible</i>	Not required
Waste Management	Municipal Solid Waste: <i>None-to-Negligible</i>	Adherence to Federal, state, and local waste management requirements*
	Hazardous Waste: <i>None-to-Negligible</i>	Adherence to Federal, state, and local waste management requirements*
Public Opinion	<i>Minimal-to-Moderate</i> – Concerns about traffic	Not required
Human Health and Safety	<i>Minimal-to-Moderate</i> – construction workers risk of work-related injury	Compliance with OSHA regulations*
Environmental Justice	<i>Beneficial</i> – EEO and Affirmative Action for construction contracts	Not required

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Environmental Attribute	Potential Environmental Impacts Related to Construction	Applicable Mitigation Mechanisms
Cumulative Impacts	Water Resources: <i>Minimal-to-Moderate</i> – ESC and SWM issues	BMPs, ESC and SWM per MDE requirements*
	Health and Safety: <i>Minimal-to-Moderate</i> - worker safety impacts	Implementation of the SIPP*; Joint safety coordination with other concurrent construction projects
	Traffic: <i>Minimal-to-Moderate</i> – construction vehicles from various projects	Coordination with construction managers*; Joint safety coordination with other concurrent projects
	Air: <i>Minimal-to-Moderate</i> – traffic-related emissions	Not required
	Noise: <i>Minimal-to-Moderate</i> – construction activities and vehicles	Not required

*Required mitigation as part of the Proposed Action

Table 5-5. Summary of Potential Environmental Impacts Related to the Operation of the Proposed CBOC

Environmental Attribute	Potential Environmental Impacts Related to Construction	Applicable Mitigation Mechanisms
Land Use	<i>Beneficial</i> – project is consistent with land use	Not required
Climate	<i>None-to-Negligible</i>	Not required
Geology	<i>None-to-Negligible</i>	Not required
Soils	<i>Minimal-to-Moderate</i> – erosion from increased runoff	BMPs and ESC per MDE and Installation standards*
Water Resources	Surface Water: <i>Minimal-to-Moderate</i> – increased runoff	Not required
	Groundwater: <i>None-to-Negligible</i>	Not required
	Floodplains: <i>None-to-Negligible</i>	Not required
	Wetlands: <i>None-to-Negligible</i>	Not required
Biological Resources	<i>None-to-Negligible</i>	Not required
Air Quality	<i>Minimal-to-Moderate</i> - vehicle emissions from increased patient and employee traffic; however, shorter distances traveled by visitors would offset regional vehicles emissions	Not required
Cultural Resources	<i>None-to-Negligible</i>	Not required
Socioeconomic Conditions	<i>Beneficial</i> – Improved health services availability for regional veterans; shared resources	Not required
Noise	<i>Minimal-to-Moderate</i> – increased levels from increased traffic	Not required
Odors	<i>None-to-Negligible</i>	Not required
Transportation	<i>Minimal-to-Moderate</i> – increased patient visits and employee traffic	Not required
Utilities	Water Supply: <i>None-to-Negligible</i> (relative to existing capacity and average use)	Not required
	Wastewater: <i>None-to-Negligible</i> (relative to existing capacity and average use)	Not required
	Storm water: <i>Minimal-to-Moderate</i> – increased runoff volumes and velocities	BMPs, ESC per MDE requirement* and/or implementation of future Institutional Storm Water Plan
	Energy: <i>None-to-Negligible</i> (relative to existing capacity and average use)	Not required

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Environmental Attribute	Potential Environmental Impacts Related to Construction	Applicable Mitigation Mechanisms
Waste Management	Municipal Solid Waste: <i>None-to-Negligible</i> (relative to existing capacity and average amounts generated)	Adherence to Federal, state, and local waste management requirements*
	Medical Waste: <i>None-to-Negligible</i> (relative to existing capacity and average amounts generated)	Adherence to Federal, state, and local waste management requirements*
	Hazardous Waste: <i>None-to-Negligible</i> (relative to existing capacity and average amounts generated)	Adherence to Federal, state, and local waste management requirements*
Public Opinion	<i>Beneficial</i> - Anticipated positive reaction for increased medical services for area veterans and active military personnel	Not required
Human Health & Safety	<i>Minimal-to-Moderate</i> – Uncertainties regarding EMF exposure	Not required
Environmental Justice	<i>Beneficial</i> – increased health care and more accessibility for low-income area veterans	Not required
Cumulative Impacts	Water Resources: <i>Minimal-to-Moderate</i> - minor cumulative soil erosion and sedimentation impacts associated with increased storm water runoff	BMPs, ESC per MDE requirement* and/or implementation of future Institutional Storm Water Plan
	Traffic: <i>Minimal-to-Moderate</i> – increased patient traffic over next few years	Not required (Road improvements ongoing per Master Plan)
	Air: <i>Minimal-to-Moderate</i> – traffic-related emissions	Not required
	Noise: <i>Minimal-to-Moderate</i> - traffic-related noise	Not required
	Utilities: <i>None-to-Negligible</i> (relative to existing capacities and average consumption rates)	Not required
	Waste Management: <i>None-to-Negligible</i> (relative to existing capacities and average amounts of waste generated)	Adherence to Federal, state, and local waste management requirements*

*Required mitigation as part of the Proposed Action

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6.0 CONCLUSIONS

The Proposed Action, Construction and Operation of a CBOC by the VA adjacent to the Barquist Army Health Care Facility, is the preferred alternative. Based on the impacts analysis in Section 5.0, the construction and operation of the Proposed Action would have no *significant-and-unmitigable* adverse impacts on the natural and human environments that would preclude the issuance of a FONSI. The most severe impacts on any environmental resources as indicated in Tables 5-4 and 5-5 would be *minimal-to-moderate*, while the implementation of the Proposed Action would provide enhanced medical services and shorten average travel distance for veterans and Installation personnel, as well as improve medical service efficiencies between the VA and DoD.

The VAMC coordinated with the VISN 5 network office to screen potential sites for the Proposed Action. Several siting criteria were considered in the screening process as described in Section 3.1, including: location, size, accessibility, utilities, public transportation, environment, and availability. Fort Detrick fulfilled all of the criteria and also included a vacant tract of land adjacent to the Barquist Army Health Care Facility. Therefore, no other alternative sites were carried forward for detailed evaluation in this EA and comparison to the No Action Alternative.

The EA identified several potential environmental issues associated with the implementation of the Proposed Action. The impacts of principal concern would be increased traffic at Fort Detrick during the operational phase of the Proposed Action and traffic-related impacts, such as increased noise levels and local fugitive air emissions, as well as increased runoff volumes that could lead to significant erosion and sedimentation during construction and operation of the facility. Impacts on and off the Installation's roadways were found to be *minimal-to-moderate*, as the estimated number of trips generated from the proposed CBOC would be minor relative to projected conditions. There are also a number of infrastructure projects that are either in the planning stages or are in progress, which would minimize vehicle congestion. Impacts to local air quality would increase slightly; however, due to shortened travel distances for veterans in the Fort Detrick region, degradation to air quality would be offset regionally and therefore, overall impacts to air quality would be *minimal-to-moderate*. Impacts due to increased runoff were found to be *minimal-to-moderate* during construction and implementation of the Proposed Action. These impacts would be kept to a minimum through the use of BMPs, ESC, and SWM per MDE and DA regulations as required for the Proposed Action.

The No Action Alternative, while not changing the environment, would not provide any benefits, specifically the enhanced health care services to the military community at and surrounding Fort Detrick and the maximizing of health care resources through a joint initiative that encourages interagency partnerships. In addition, area veterans seeking medical care would have to be routed to other installations, increasing travel time, regional traffic congestion and vehicle emissions.

The principal conclusions of this EA are:

- The implementation of the Proposed Action (Construction and Operation of a CBOC by the VA adjacent to Barquist Army Health Care Facility at Fort Detrick, Maryland) would

provide additional medical services to accommodate the rapidly increasing number of veterans in the VISN 5 region; provide more accessible medical services and shorten travel distances (and thus, offset adverse regional air quality impacts) for the military community of Fort Detrick; demonstrate the objectives of a Presidential joint initiative that would lead to more efficient health care resources; and increase Fort Detrick's real property value;

- The construction and operation of a new CBOC adjacent to the Barquist facility would not result in any *significant-and-unmitigable* adverse impacts on the natural or human environments that would preclude the issuance of a FONSI; and
- Except for air quality, the implementation of the No Action Alternative would have no adverse impacts to the natural or human environments, but it would not provide any of the benefits associated with the Proposed Action. Without the benefits of a new CBOC in the Fort Detrick area, the VAMC in Martinsburg would operate under the *status quo* and remain limited in up-to-date medical facilities and sufficient medical support. Veterans in the Fort Detrick region would continue to drive longer travel distances, which would result in higher vehicle emissions in the region.

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8.0 ACRONYMS AND ABBREVIATIONS

ac	acres
AP	Allegheny Power
APP	Accident Prevention Plan
AR	Army Regulation
ARMA	Air and Radiation Management Administration
BMP	Best Management Practice
CAA	Clean Air Act
CARES	Capital Asset Realignment Enhanced Services
CBOC	Community-Based Outpatient Clinic
ccf	hundred cubic feet
CDC	Centers for Disease Control and Prevention
CEQ	Council of Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CERN	(European Organization for Nuclear Research)
CFR	Code of Federal Regulations
CK	Chevron Energy Solutions Company and Keenan Development
CO	Carbon Monoxide
COMAR	Code of Maryland Regulations
CUP	Cogeneration Utility Plant
CY	Calendar Year
DA	Department of Army
DA PAM	Department of Army Pamphlet
dBA	decibels on an A-weighted scale
DHS	Department of Homeland Security
DIS	Directorate of Installation Services
DoD	Department of Defense
DRMS	Defense Reutilization and Marketing Service
EA	Environmental Assessment
EBS	Environmental Baseline Survey
ECP	Environmental Condition of Property
ESC	Erosion and Sediment Control
EIS	Environmental Impact Statement
EMF	electromagnetic fields
EO	Executive Order
EPA	Environmental Protection Agency
EUL	Enhanced Use Lease
ESC	Erosion and Sediment Control
°F	degrees Fahrenheit
FCA	Forest Conservation Act
FCP	Forest Conservation Plan
FEMA	Federal Emergency Management Agency

FY	Fiscal Year
FONSI	Finding of No Significant Impact
ft	foot (or feet)
ft ²	square foot (or feet)
gal	gallon(s)
HAP	Hazardous Air Pollutant
HCM2000	2000 Highway Capacity Manual
HMMO	Hazardous Material Management Office
hp	horsepower
IRF	Integrated Research Facility
IMP	Institutional Management Plan
in	inch(es)
ITE	Institute of Transportation Engineers
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
lb	pound(s)
LOS	Level of Service
MDE	Maryland Department of Environment
MDNR	Maryland Department of Natural Resources
mG	milliGauss
mgd	million gallons per day
mi	mile(s)
MMBtu/hr	Million British Thermal Unit per hour
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NB	northbound
NBACC	National Biodefense Analysis and Countermeasures Center
NCI	National Cancer Institute
NEPA	National Environmental Policy Act of 1969
NIBC	National Interagency Biodefense Campus
NIEHS	National Institute of Environmental Health Sciences
NIH	National Institutes of Health
NOI	Notice of Intent
NO _x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	New Source Review
O ₃	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
PM _{2.5}	Particulate Matter (with diameter smaller than 2.5 microns)
PM ₁₀	Particulate Matter (with diameter smaller than 10 microns)
POC	point of contact
PPE	Personal Protective Equipment
PSD	Prevention of Significant Deterioration

RBC	Risk-Based Concentrations
RCRA	Resource Conservation and Recovery Act
RDTE	Research, Development, Testing, and Evaluation
RI	Remedial Investigation
ROA	Report of Availability
RPPB	Real Property Planning Board
SAP	Satellite Accumulation Point
SB	southbound
SDWA	Safe Drinking Water Act
SEIPO	Safety, Environment, and Integrated Planning Office
SIP	State Implementation Plan
SIPP	Safety Incident Prevention Plan
SO ₂	Sulfur Dioxide
SO _x	Sulfur oxides
SOP	Standard Operating Procedure
SSP	Steam Sterilization Plant
SWPPP	Stormwater Pollution Prevention Plan
SWM	Stormwater Management
TAP	Toxic Air Pollutant
TCE	trichloroethylene
TP	Total phosphorous
tpy	tons per year
TSD	Treatment, Storage, and Disposal
TSS	Total suspended solids
UEPH	Unaccompanied Enlisted Personnel Housing
USAG	U.S. Army Garrison
USACE	U.S. Army Corps of Engineers
USAMRIID	U.S. Army Medical Research Institute for Infectious Diseases
USAMRMC	U.S. Army Medical Research and Materiel Command
USC	U.S. Code
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
VA	Veterans Affairs
VAMC	Veterans Affairs Medical Center
VHA	Veterans Health Administration
VISN 5	Veterans Integrated Service Network 5
VOC	volatile organic compound
vpd	vehicle trips per day
WQv	water quality volume
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant
yd ³	cubic yard

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The following PHE personnel provided instrumental technical assistance in preparation of this EA. They have no financial or other interest in the outcome of the proposed project.

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APPENDIX A

CLEAN AIR ACT GENERAL CONFORMITY

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**RECORD OF NON-APPLICABILITY
CLEAN AIR ACT GENERAL CONFORMITY
March 2006**

Project/Action: Construction and Operation of a Veterans Affairs Community-Based Outpatient Clinic (CBOC) at Fort Detrick, Maryland

Project/Action Point of Contact: Mr. Warren Livengood, Engineer – Veterans Affairs Medical Center (VAMC), Martinsburg, West Virginia

Construction Start Date: early 2007

Construction End Date: end 2007

The Washington, DC-MD-VA region, which includes Frederick County, is designated as a *moderate* nonattainment area for ozone. NO_x and VOC are the precursor pollutants to be evaluated and controlled for ozone nonattainment. The emission rate thresholds for NO_x and VOC are 100 tons per year for each pollutant. According to a 1990 base-year inventory for the Washington, DC-MD-VA region, the total annual emissions for NO_x and VOC were 869.3 and 955.2 tons, respectively (*State Implementation Plan (SIP) – “Severe Area SIP”*, December 17, 2003).

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project/action identified above according to the requirements of 40 CFR 93.150 through 93.160, using the design data and plans that have been completed to date. The requirements of this rule are not applicable to this project/action because:

1. Total direct and indirect oxides of nitrogen (NO_x) and volatile organic compound (VOC) emissions from this project/action have been estimated as follows:

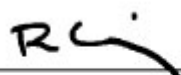
	Construction Year (2007)	Operational Year (2008)
NO _x (tons/year)	1.83	1.78
VOC (tons/year)	0.41	3.41

The emissions estimated for the project/action are well below the conformity threshold values established at 40 CFR 93.153(b) of 100 tons per year for each pollutant.

AND

2. The project/action is not considered regionally significant under 40 CFR 93.153(b) because the total direct and indirect NO_x and VOC emissions do not amount to 10 percent or more of the nonattainment area's emissions (based on the 1990 base-year emissions inventory).

Supporting documentation and emissions estimates are appended.

 3/31/2006

Robert P. Craig, P.E.
Environmental Coordinator

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**RECORD OF NON-APPLICABILITY
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SUPPORTING DOCUMENTATION

The Department of Army proposes to permit approximately 3.4 acres of land to the Veterans Affairs Medical Center (VAMC), Martinsburg, WV for the purpose of constructing and operating a Community-Based Outpatient Clinic (CBOC) adjacent the Barquist Army Health Care Facility in Area A of Fort Detrick, Maryland. Fort Detrick is located in an area that has been designated as a *moderate* nonattainment area for ozone. The pollutants of concern for an ozone nonattainment area are oxides of nitrogen (NO_x) and volatile organic compounds (VOCs).

Sources of Direct and Indirect Emissions – Proper consideration of this project includes actual direct and indirect emissions from the following loading factors:

During construction year (2007)

- A. Contract employee commuting traffic – estimated at 20 vehicles driving 2 miles per workday on Fort Detrick (total of 200 working days, based on Monday through Thursday construction work schedule)
- B. Heavy vehicles/equipment
 - B1. Cement trucks estimated at 5 trucks for 3 hours each (15 hours total during construction year)
 - B2. Bulldozers, excavators, front end loaders, etc. estimated at 200 hours total during construction year
- C. Delivery trucks during construction, estimated at 10 trucks per workweek for 4 hours each (2,000 hours total during construction year).
- D. Asphalt vehicles/equipment
 - D1. Asphalt trucks estimated at 20 trucks for two hours each for paving and striping (50,000 square feet lot) (40 hours total for construction year)
 - D2. Asphalt paving equipment (40 hours total for construction year)
- E. Painting – interior walls and line striping, estimated at 100 gallons of paint
- F. Power support from 250 kW generator during construction, 160 hours total during construction year

During operational year (2008)

- G. Additional employee commuter traffic during the operational year at an increase of 30 vehicles per day
- H. Additional visitor traffic during the operational year at an increase of 146 vehicles per day (estimated at 20 miles traveled per visitor)
- I. Installation of a 65 kW emergency generator (50 hours per year)
- J. Addition of two new boilers at new facility
- K. Additional usage of medical waste incinerators (increase by 0.03% of Fort Detrick's total use)
- L. Additional usage of municipal waste incinerators (increase by 0.41% of Fort Detrick's total use)

Emission Years – For purposes of simplicity, two separate one-year periods are addressed: construction (2007) and the first operational year (2008).

**RECORD OF NON-APPLICABILITY
CLEAN AIR ACT GENERAL CONFORMITY**

March 2006

References – Following are the references used to perform this evaluation:

1. Environmental Assessment for the Construction and Operation of a Veterans Affairs Community-Based Outpatient Clinic (April 2006)
 - a. Construction schedule – construction to take place in 2007, 6 a.m. to 3 p.m., Monday through Thursday
 - b. During operations, employee commuter traffic Fort Detrick will increase by 30 vehicles per day. Projected number of patient visits expected to peak during the year 2012 at 146 vehicles per day.
 - c. Two new boilers (each with heating capacity input of 0.36 Million British Thermal units/hour [MMBtu/h])
2. Estimates based on professional experience: types and numbers of construction equipment/activities needed, hours, etc.
3. "Emission Facts," US EPA Consumer Information, April 2000.
 - a. The average VOC emission rate for light duty gasoline vehicles is 2.8 g/mile.
 - b. The average NOx emission rate for light duty gasoline vehicles is 1.39 g/mile.
 - c. Average passenger vehicle mileage is 12,500 miles per year.
4. Nonroad Engine and Vehicle Emission Study, USEPA, November 1991.

Type of Equipment	NOx (g/hp-hr)	VOC (g/hp-hr)	Average hp
Asphalt paving equip (ozone season only)	10.3	0.613	77
Asphalt trucks (ozone season only)	11.01	1.033	275
Concrete paving equipment	10.02	1.123	99
Trenchers	10.02	1.573	143
Excavators	10.73	0.713	143
Cement mixers	11.01	1.033	275
Cranes	10.3	1.293	194
Graders	9.6	1.573	147
Dozers	9.6	0.863	356
Loaders	10.1	1.433	175
Other	11.07	1.433	275
Non-ozone season average	10.33	1.199	201

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5. 1999 Periodic Emissions Inventory of Ozone Precursor Emissions for the Washington DC-MD-VA Ozone Non-attainment Area, Metropolitan Washington Council of Governments.
 - a. Total NO_x emissions in Frederick County from all vehicles are 16.6 tons per day.
 - b. Total NO_x emissions in Frederick County from heavy-duty gasoline and diesel vehicles are 4.99 tons per day.
 - c. In Maryland, 5.19% of vehicles are heavy-duty diesel and 0.19% of vehicles are heavy-duty gasoline.

6. AP-42: Compilation of Air Pollution Emission Factors, Volume II, Mobile Sources, 5th edition.
 - a. In 2006, the average VOC emission level for heavy-duty diesel powered vehicles at 19.6 mph will be 2.3 g/mile
 - b. In 2006, the average NO_x emission level for heavy-duty diesel powered vehicles at 19.6 mph will be 12.1 g/mile
 - c. In 2006, the average VOC emission level for heavy-duty gasoline powered vehicles at 19.6 mph will be 5.9 g/mile.
 - d. In 2006, the average NO_x, emission level for heavy-duty gasoline powered vehicles at 19.6 mph will be 6.0 g/mile.

7. Material Safety Data Sheet for safety yellow enamel.

VOC content = 3.74 lb/gal

8. AP-42 Emission Factors, 5th edition.
 - a. Diesel internal combustion engines with power outputs > 447 kW emit NO_x at 0.024 lb/hp-hr and VOCs at 0.00064155 lb/hp-hr.

9. Fort Detrick 2003 Annual Emission Certifications
 - a. Total NO_x emissions from the building 190 boiler plant was 110.53 ton/year.
 - b. Total VOC emissions from the building 190 boiler plant was 1.56 ton/year.
 - c. Total NO_x emissions from the municipal waste incinerators was 4.7 ton/year.
 - d. Total VOC emissions from the municipal waste incinerators was 0.06 ton/year.
 - e. Total NO_x emissions from the medical waste incinerators was 3.36 ton/year.
 - f. Total VOC emissions from the medical waste incinerators was 0.17 ton/year.

10. AP-42: Compilation of Air Pollution Emission Factors, Volume I, Stationary Point and Area Sources, 5th edition – Chapter 1: External Combustion Sources, Section 1.4: Natural Gas Combustion (Table 1.4-1 for NO_x and Table 1.4-2 for VOC):
 - a. NO_x Emission Factor for Small Boilers (assuming uncontrolled) = 100 lb/10⁶scf (=0.09804 lb/MMBtu)
 - b. VOC Emission Factor = 5.5 lb/10⁶scf (=0.0054 lb/MMBtu)

Conclusion – Upon including the information, data, and estimates listed above in the attached table on the next page (Projected Emissions for the Proposed VA CBOC), Fort Detrick concludes that the minimal emissions increases caused by construction and operation of the proposed CBOC neither exceed the conformity review thresholds nor are regionally significant.

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Projected Emissions for the Proposed VA CBOC

Sources of Direct and Indirect Emissions	References	Calculations	NOx (tons/year)	VOC (tons/year)
<i>Construction Year (2007)</i>				
A. Contract employee commuting traffic	1, 2, 3	$([20] \text{ Employees/day}) \times ([2] \text{ Miles travel/day}) \times ([200] \text{ Working days/yr}) \times ([\text{CP EF}] \text{ g/mile}) / (454 \text{ g/lb}) / (2000 \text{ lb/ton})$	0.0122	0.0247
B. Heavy equipment/vehicles (B1. cement trucks and B2. bulldozers, excavators, etc.)	2, 4	$([15+200] \text{ Total hr/yr}) \times ([\text{CP EF}] \text{ g/hp-hr}) \times ([201] \text{ hp}) / (454 \text{ g/lb}) / (2000 \text{ lb/ton})$	0.4916	0.0571
C. Delivery vehicles	2, 5, 6	$[(96.5\% \times ([\text{CP EF}_D] \text{ g/mile}) + (3.5\% \times ([\text{CP EF}_G] \text{ g/mile}))] \times ([2,000] \text{ total hr/yr}) \times ([19.6] \text{ miles/hr}) / (454 \text{ g/lb}) / (2000 \text{ lb/ton})$	0.5132	0.1047
D1. Asphalt trucks (ozone season only)	2, 4	$([40] \text{ Total hr/yr}) \times ([\text{CP EF}] \text{ g/mile}) \times ([275] \text{ hp}) / (454 \text{ g/lb}) / (2000 \text{ lb/ton})$	0.1334	0.0125
D2. Asphalt paving equipment (ozone season only)	2, 4	$([40] \text{ Total hr/yr}) \times ([\text{CP EF}] \text{ g/mile}) \times ([77] \text{ hp}) / (454 \text{ g/lb}) / (2000 \text{ lb/ton})$	0.0349	0.0021
E. Painting – interior and line striping	2, 7	$([100] \text{ gallons/yr}) \times ([\text{VOC EF}] \text{ lb/gal}) / (2000 \text{ lb/ton})$	---	0.1870
F. Power support (generator)	2, 8	$([250] \text{ kW}) \times 1.341 \text{ hp/kW}) \times ([160] \text{ hr/yr}) \times ([\text{CP EF}] \text{ lb/hp-hr}) / (2000 \text{ lb/ton})$	0.6437	0.0172
TOTAL CONSTRUCTION YEAR EMISSIONS			1.83	0.41
<i>Operational Year (2008)</i>				
G. Commuter vehicles	1, 2, 3	$([30] \text{ vehicles}) \times [\text{CP EF}] \text{ g/mile} \times [12,500] \text{ mi/yr-vehicle} / (454 \text{ g/lb}) / (2000 \text{ lb/ton})$	0.5741	1.1564
H. Visitor vehicles	1, 2	$([146] \text{ visitors/day}) \times ([20] \text{ Miles travel/visitor}) \times ([250] \text{ Working days/yr}) \times ([\text{CP EF}] \text{ g/mile}) / (454 \text{ g/lb}) / (2000 \text{ lb/ton})$	1.1175	2.2511
I. Emergency generator use	2, 8	$([50] \text{ hr/yr}) \times [\text{CP EF}] \text{ lb/hp-hr} \times [65] \text{ kW} / 1.341 \text{ kW/hp}) / (2000 \text{ lb/ton})$	0.0029	0.0008
J. Two additional boilers at new facility	1, 2, 10	$(2 \times [2,000 \text{ hr/yr}]) \times [\text{CP EF}] [0.36] \text{ MMBtu/hr} / (2000 \text{ lb/ton})$	0.0700	0.0040
K. Additional usage of medical waste incinerator	2, 9	$([\text{CP emissions in 2003}] \text{ ton/yr}) \times [0.03] \% \text{ increase}$	0.0010	0.0001
L. Additional use of municipal waste incinerator	2, 9	$([\text{CP emissions in 2003}] \text{ ton/yr}) \times [0.41] \% \text{ increase}$	0.0193	0.0002
TOTAL OPERATIONAL YEAR EMISSIONS			1.78	3.41

Notes: CP = criteria pollutant; EF= emission factor; EF_D = emission factor for heavy-duty diesel powered vehicle; EF_G = emission factor for heavy-duty gasoline powered vehicle